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No. 90-1657

In the Supreme Court of the United States

OCTOBER TERM, 1990

COMMONWEALTH OF MASSACHUSETTS, SEACOAST ANTI-POLLUTION LEAGUE, NEW ENGLAND COALITION ON NUCLEAR POLLUTION, AND TOWN OF HAMPTON,
PETITIONERS,

v.

UNITED STATES NUCLEAR REGULATORY COMMISSION, UNITED STATES OF AMERICA, AND PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE,
RESPONDENTS.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT

BRIEF IN OPPOSITION OF RESPONDENT, PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

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QUESTIONS PRESENTED

1. Did the United States Court of Appeals for the District of Columbia Circuit err in holding that the United States Nuclear Regulatory Commission (NRC) had not abused its discretion in permitting the Seabrook Nuclear Power Station (Seabrook) to operate at full power pending NRC's further review of licensing issues?

2. Did the United States Court of Appeals err in according deference to the NRC's interpretation of its own regulations in the circumstances of the case presented?

PARTIES TO THE PROCEEDINGS

In addition to the parties listed on Page 2 of the petition, Public Service Company of New Hampshire (PSCO)*, as lead owner of Seabrook** participated in the proceedings before the court below as an intervenor therein, and is a respondent in this Court pursuant to Rule 12.4. In addition, appearances were entered for various other cities or towns in The Commonwealth of Massachusetts, although these entities did not actually brief or argue the cause.

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* It is anticipated that PSCO, after certain regulatory approvals are obtained, will be merged into Northeast Utilities, a Connecticut-based utility holding company.

** Other owners of Seabrook include Canal Electric Company, a subsidiary of Commonwealth Energy Systems, Connecticut Light & Power Company, a subsidiary of Northeast Utilities, EUA Power Company and Montaup Electric Company, subsidiaries of Eastern Utility Associates, Hudson Light & Power Company, Massachusetts Municipal Wholesale Electrical Company, New England Power Company, a subsidiary of New England Electric System, New Hampshire Electric Cooperative, Inc., Taunton Municipal Light Plant, The United Illuminating Company and Vermont Electric and Generation Transmission Cooperative, Inc.

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BRIEF IN OPPOSITION OF RESPONDENT, PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

STATEMENT

1. *Background:* During the lengthy proceedings which ultimately led to the licensing for full power operation (pending further administrative review) of Seabrook Station

(Seabrook), a nuclear power facility[1] located in Seabrook, New Hampshire, the Petitioners herein sought admission into evidence of certain prefiled testimony. The testimony purported to analyze the amounts of radiation dose which would be received by individuals near Seabrook in the event of a catastrophic accident, even assuming that the emergency plans, which had been designed to mitigate such an event by the State of New Hampshire, were implemented. The cognizant trial tribunal, an Atomic Safety and Licensing Board (Licensing Board) of the United States Nuclear Regulatory Commission (NRC or Commission),[2] excluded the testimony on the basis of prior NRC authority to the effect that calculations of dose savings resulting from particular emergency protective actions at particular sites under particular accident scenarios were irrelevant to the issue of whether emergency plans required by NRC regulations, 10 C.F.R. § 50.47; 10 C.F.R. 50, App. E, were or were not adequate.[3] The correctness *vel non* of this evidentiary ruling was certified to the NRC for decision by the cognizant Atomic Safety and Licensing Appeal Board.[4] The decision excluding the testimony was upheld in a unanimous Commission decision, *Public Service Company of New Hampshire* (Seabrook Station Units 1 and 2), CLI-90-02, 31 N.R.C. 197 (1990).[5] The Commission ruled that ascertainment of the "dose savings" to be realized in par-

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[1] The initial application for a construction permit for Seabrook was filed in 1973. The full power license issued some seventeen years later in 1990.

[2] NRC had, as of the time the *Seabrook* proceeding was pending, perhaps the most elaborate adjudicatory apparatus of any agency of the United States. The "trial" proceedings are held before a Licensing Board; from this tribunal, an appeal was allowed as of right to the Atomic Safety and Licensing Appeal Board (Appeal Board); this, in turn, could be followed by discretionary review by the Commission itself. See 10 C.F.R. §§ 2.700 *et seq.*

[3] The Licensing Board's ruling was read orally from the bench. *See* the decision below, *Massachusetts* v. *N.R.C.*, 924 F.2d 311, 317 (D.C. Cir. 1991). The decision below is reproduced in Vol. I of the Appendix to the Petition for Certiorari herein (hereafter cited "App.") App. Vol. I at 16.

[4] See n. 2, *supra*.

[5] App. Vol. I at 130-201.

ticular circumstances are not the proper method by which to measure the adequacy of a radiological emergency plan; rather, the proper test was to measure the plan against planning standards set forth in the Commission's regulations, 10 C.F.R. § 50.47(b).[6] The Petitioner's sought review in the United States Court of Appeals for the District of Columbia Circuit of this decision, along with another Commission decision, issued of even date, which actually authorized full power operation, *Public Service Company of New Hampshire*, CLI-90-03 (Seabrook Station, Units 1 and 2), 31 N.R.C. 219 (1990).[7] In that Court, Petitioners argued that the exclusion of the testimony was a violation of NRC's own regulations, particularly 10 C.F.R. § 50.47(a)(1).[8]

2. *The Court of Appeals Opinion:* The Court of Appeals affirmed the action of NRC. In so doing it began with a jurisdictional discussion which illustrates the narrow reach of the decision. Therein, the Court of Appeals pointed out that the ultimate decison on review, *i.e.*, the license authorizing decision, CLI-90-03, was "an immediate effectiveness review", reviewable, under prior Court of Appeals precedent, only for an abuse of discretion.[9] The Court of Appeals went on to point out:

> "The only 'final agency action' at issue here is an order allowing the plant to operate at full power pending the Commission's further review of the licensing issues."[10]

In affirming the exclusion of the evidence, the Court of Appeals correctly applied a deferential standard of review to the NRC's interpretation of its own regulation.[11] It found that the test adopted by the Commission was permitted by the regulatory language,[12] and prohibited neither by any appli-

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[6] App. Vol. I at 183-98.
[7] App. Vol. II at 1-140.
[8] *Petition* at 3.
[9] App. Vol. I at 43-44.
[10] App. Vol. I at 46; 924 F.2d at 322.
[11] App. Vol. I at 53-57; 924 F.2d at 324.
[12] App. Vol. I at 57-63; 924 F.2d at 324-25.

cable statutory limitation[13] nor any proper interpretation of rulemaking history.[14] In particular, the Court noted that by neither interpretation, nor draftsmanship, had NRC ever indicated an intent that the regulation at issue would have the effect of being a "site blocker", noting that siting regulations were set out in an entirely separate part of NRC's regulations.[15] Finally, the Court of Appeals, as had the Commission before it,[16] noted that the Petitioners had not taken advantage of certain procedural steps which would have permitted submission of the testimony in the form of affidavits supporting a motion to waive the regulations on the basis that Seabrook presented special circumstances.[17]

REASONS FOR DENYING THE PETITION

The petition herein is long on history and short on reasons why the Court should grant the Petition. As a result it is difficult to ascertain precisely what arguments are being made to support the assertion that the case presents an important question of Federal Law which has not been, but should be, settled by this Court. In any event, the following reasons militate against the granting of the Petition.

1. The case does not present the question claimed by the Petitioners. Petitioners claim that the question presented is:

> "May the Nuclear Regulatory Commission ("NRC") issue a full power operating license for a nuclear power plant without deciding whether the applicable emergency plans will effectively protect the public in a radiological emergency."[18]

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[13] App. Vol. I at 63-74; 924 F.2d at 325-27.
[14] App. Vol. I at 74-80; 924 F.2d at 327-29.
[15] App. Vol. I at 71-73, 89; 924 F.2d at 327, 30.
[16] App. Vol. I at 200.
[17] App. Vol. I at 89-91; 924 F.2d at 330.
[18] *Petition* at (i).

But this is not what NRC did, even accepting Petitioners' own version of the proceedings below. The administrative decision as to which the Petitioners claim error, CLI-90-2, makes clear that the Commission was *not* making a decision as to adequacy but rather was setting forth how such a determination was to be made.[19] Subsequently, that determination was made by the Appeal Board on May 31, 1990. *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-932, 31 NRC 371, 424 (1990) (Appendix to this Brief at A-78—A-80). Review was not sought before the NRC by the Petitioners of this decision which has become final agency action by operation of law. 10 C.F.R. § 2.786. Nor did Petitioners seek review of that decision in the Courts of Appeals. Thus, the decision giving rise to the issue stated by Petitioners here never was appealed by them. The issue actually presented by the case at bar is not one of whether NRC is assuring itself of emergency plan adequacy in licensing cases. Rather, the issue presented is whether Petitioners' methodology for determining adequacy should be followed as opposed to that selected by NRC. As the Court of Appeals correctly recognized, the methodology and procedures by which an expert agency possessing broad statutory discretion makes its necessary determinations, is quintessentially a matter commited to agency discretion at least absent a clearly and unequivocally stated statutory or regulatory provision to the contrary.[20]

2. From the face of the Petition it is also apparent that the issue sought to be raised, assuming it were raised, is not of any widespread importance. Petitioners claim, in essence, that, in

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[19] App. Vol. I at 200-201. And, of course, CLI-90-03, likewise did not determine final adequacy; only that for purposes of allowing operation during the pendency of intra-agency appeals, the Licensing Board decision seemed reasonable. *E.g.*, App. Vol. II at 1-2, 32-95.

[20] *Vermont Yankee Nuclear Power Corp.* v. *Natural Resources Defense Council, Inc.*, 435 U.S. 519, 543 (1978); *F.C.C.* v. *Schreiber*, 381 U.S. 279, 290 (1965).

licensing Seabrook, NRC changed the emergency planning rule by adjudicatory interpretation from that under which previous plant licensing proceedings had been conducted.[21] Prescinding from the accuracy of the characterization, it is clear that *Seabrook* is the last adjudicatory operating license proceeding in the NRC pipeline which raises substantial emergency planning issues. Thus, the issue has no practical importance with respect to future cases, and, if one accepts Petitioners' own assertions, all other operating plants were licensed under, and continue to operate under, a rule interpretation more to their liking. It is difficult to see how a petitioner could so define and argue an issue so as to make it less worthy of this Court's attention.

3. The Court of Appeals' deferential standard is in full accord with settled legal principles and prior decisions of this Court. Petitioners cite *Arizona Grocery Co.* v. *Atcheson Topeka & Santa Fe Ry.*, 284 U.S. 370 (1932) for the proposition that NRC could not, by adjudication, change an interpretation of its own regulations.[22] But *Arizona Grocery* simply held that the Interstate Commerce Commission, having declared a certain rate legal in a ratemaking proceeding, could not in a later adjudication simply declare it "illegal" and penalize a carrier as a result. Petitioners cite *Immigration and Naturalization Service* v. *Cardoza-Fonseca*, 480 U.S. 421, 446 n.30 (1987) and *Batterton* v. *Francis*, 432 U.S. 416, 425 n.9 (1977) as illustrating that the Court of Appeals gave undue deference to NRC's interpretation of its own regulation. However, both of these cases involved interpretations by adjudication (*Cardoza-Fonseca*) and rulemaking (*Batterton*) of a federal statute. What was not involved in either case, and was recognized explicitly in the *Batterton* footnote cited by Petitioners as owed great deference, was a legislative-type regulation within an agency's statutory expertise as is here involved.

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[21] See, *e.g.*, *Petition* at 25, 31, 33-34.

[22] *Petition* at 31-32. The Petitioners' quote from the case is also inaccurate. The word used by the Court was "retroactive" not "retrospective".

In short, the prior decisions of this Court cited by Petitioners are wholly inapposite. The Court of Appeals, in accord with numerous decisions of this Court, correctly deferred to the agency in this matter of the proper interpretation to be accorded the agency's own, clearly authorized, regulations.[23]

4. At Note 7 on Page 32 of the Petition, Petitioners seek to justify their failure to utilize available procedures suggested by the Commission and the Court of Appeals to obtain consideration of their evidence on the basis that they had no idea that the Commission would interpret its emergency planning rule so as not to require specific dose calculations and analyses. The plea of ignorance belies the facts. Nine years ago, one of these petitioners, Seacoast Anti-Pollution League, sought to force a hearing on whether Seabrook could comply with the then recently adopted, post-Three Mile Island, emergency planning regulations. In the decision denying SAPL the relief it sought, *Seacoast Anti-Pollution League* v. *NRC*, 690 F.2d 1025 (D.C. Cir. 1982), a case cited in the Petition itself, the Court of Appeals characterized one of SAPL's arguments thus:

> "SAPL also argues that regulations adopted by the Commission provide no standard by which to gauge the adequacy of emergency plans because they do not set out specific radiation dose limits and release times."

690 F.2d at 1029 n.14 (emphasis added). In short, Petitioner SAPL, at least, had been aware for years that "dose" evidence was irrelevant under the regulation.

5. In sum, the case at bar represents the unremarkable application of settled judicial principles to the discretionary ruling of an agency to permit a license to be effective pending

[23] *Gardebring* v. *Jenkins*, 485 U.S. 415, 430 (1988); *United States* v. *Larinoff*, 431 U.S. 864, 872-73 (1977); *Immigration and Naturalization Service* v. *Stanisic*, 395 U.S. 62, 72 (1969); *Udall* v. *Tallman*, 380 U.S. 1, 16-17 (1965); *Bowles* v. *Seminole Rock & Sand Co.*, 325 U.S. 410, 414 (1945).

intra-agency review of the adjudicatory proceedings leading up to its issuance. The agency decision that arguably might have presented the issue Petitioners want to raise was never appealed by Petitioners.

CONCLUSION

The petition for a writ of certiorari should be denied.

Respectfully submitted,

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Dated: May 24, 1991

APPENDIX

Cite as 31 NRC 371 (1990) **ALAB-932**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

G. Paul Bollwerk, III, Chairman
Alan S. Rosenthal
Howard A. Wilber

In the Matter of **Docket Nos. 50-443-OL**
50-444-OL
(Offsite Emergency Planning Issues)

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, *et al.*
(Seabrook Station, Units 1 and 2)

May 31, 1990

In reviewing LBP-88-32, 28 NRC 667 (1988), concerning the New Hampshire Radiological Emergency Response Plan (NHRERP) for the Seabrook Station, the Appeal Board affirms those portions of LBP-88-32, 28 NRC 667, regarding "Response Personnel Adequacy," "Human Behavior in Emergencies," and "Evacuation Time Estimates (ETEs)," and unpublished Licensing Board rulings on Seacoast Anti-Pollution League (SAPL) Contentions 4 and 5, except that the Appeal Board reverses and remands the Licensing Board's ruling on ETEs for further calculations relative to the "hidden vehicles" described in ¶9.120 of LBP-88-32. Thus, the Appeal Board

addresses the remainder of issues concerning the NEHRERP not covered by ALAB-924, 30 NRC 331 (1989), *petitions for review pending*. In addition, the Board further explains some matters in light of CLI-90-2, 31 NRC 197 (1990), *petition for review pending sub nom. Massachusetts* v. *NRC*, No. 90-1132 D.C. Cir. filed Mar. 7, 1990), the Commission's recent decision in which it discussed whether emergency planning requirements are "adequate protection" standards within the meaning of section 182 of the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2232).

EMERGENCY PLANNING: RESPONSE PERSONNEL

For purposes of judging the adequacy of state and local response personnel resources, individuals properly are considered to be "available" to provide services if they are within an organization or "pool" that is a candidate to perform a particular response function.

EMERGENCY PLANNING: RESPONSE PERSONNEL

The Licensing Board's conclusion that (1) "temporal availability" of response personnel (i.e., the ability to participate in response activities on a twenty-four hour basis, and (2) "volitional availability" of response personnel (i.e., the willingness to participate in response activities), is more properly addressed and evaluated as part of the "planning" and "implementation" process (including the full-scale emergency response exercise), rather than in assessing the adequacy of response personnel resources "pools," is a reasonable one that is not at odds with any existing regulatory requirement.

EMERGENCY PLANNING: RESPONSE PERSONNEL; REGULATORY GUIDANCE (NUREG-0654)

REGULATIONS: INTERPRETATION (10 C.F.R. § 50.47(b)(1))

The declaration in 10 C.F.R. § 50.47(b)(1) that each principal response organization must have "staff to respond and to

augment its initial response on a continuous basis" and the guidance in NUREG-0654 Criterion II.A.4 that "[e]ach principal organization shall be capable of continuous (24-hour) operations for a protracted period" do not require or suggest any particular time by which a response organization must be "fully staffed" or any particular method by which staffing adequacy must be demonstrated.

EMERGENCY PLANNING: PUBLIC NOTIFICATION; RESPONSE PERSONNEL

REGULATIONS: INTERPRETATION (10 C.F.R. Part 50, APP. E, § IV.D.3)

Section IV.D.3 of Appendix E to 10 C.F.R. Part 50, while mandating that the licensee must have the capability to notify state and local officials within fifteen minutes of declaring an emergency and that the capability must exist to notify the public of a situation requiring urgent action within fifteen minutes of notifying state and local officials, does not require any particular time for attaining full response organization staffing or any particular method by which staffing adequacy must be demonstrated.

EMERGENCY PLANNING: RESPONSE PERSONNEL

In the absence of any compelling showing that significant segments of those in the response personnel "pools" being relied upon as a principal planning basis to establish response personnel resources adequacy are for one reason or another likely to be "unavailable," there was no need for emergency planners to make a separate "availability" showing as part of the process undertaken to identify those "pools."

EVIDENCE: DUTY TO PROVIDE

A party that fails to put forth allegedly relevant information on direct examination is not entitled to have that information considered because it could have been elicited during cross-examination.

EMERGENCY PLANNING: FEMA FINDINGS (NEED FOR FINAL FINDINGS)

REGULATIONS: INTERPRETATION (10 C.F.R. § 50.47(a)(2))

"Section 50.47(a)(2) does not require deferment of any hearing on State and local government emergency response plans to await FEMA's issuance of final findings on those plans. Rather, what that [s]ection contemplates is a licensing decision based on the best available current information on emergency preparedness." *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 775 (1983) (citation and footnote omitted). *See also Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-776, 19 NRC 1373, 1379 (1984); *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 379-80 (1983).

EMERGENCY PLAN(S): CONTENT (SUFFICIENCY)

LICENSING BOARD(S): DISCRETION IN MANAGING PROCEEDINGS

It is for the Licensing Board to judge at exactly what stage an emergency plan is sufficiently developed to allow for hearings and a decision, taking into account the evidence on the current state of the plan. *Zimmer*, ALAB-727, 17 NRC at 775.

EVIDENCE: ADMISSIBILITY (SURREBUTTAL TESTIMONY)

LICENSING BOARD(S): DISCRETION IN MANAGING PROCEEDINGS (SURREBUTTAL TESTIMONY)

The admission of surrebuttal testimony is a matter within the discretion of a Licensing Board, particularly when the party sponsoring the testimony reasonably should have anticipated the attack upon its evidence. *See Cellular Mobile Systems* v. *FCC*, 782 F.2d 182, 201-02 (D.C. Cir. 1985).

RULES OF PRACTICE: APPELLATE REVIEW

APPEAL BOARD(S): SCOPE OF REVIEW

It is a "settled principle of appellate practice that an appellant is ordinarily precluded from pressing issues or advancing arguments not presented to the trial tribunal," except possibly in the case of "serious substantive issues." ALAB-924, 30 NRC at 358.

EVIDENCE: INFERENCES; QUANTUM OF PROOF

RULES OF PRACTICE: EXPERT WITNESS

In reviewing Licensing Board findings based on the testimony of applicants' expert witnesses, "[t]he possibility that inconsistent or even contrary inferences could be drawn if the views of [intervenors'] experts were accepted does not prevent the trial board's findings from being supported by substantial evidence." *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858, 866 (1975) (citations omitted).

APPEAL BOARD(S): STANDARD OF REVIEW

After giving the Licensing Board's factual findings the probative force they intrinsically command regarding aberrant behavior by the general public, the Appeal Board concludes there is no basis for reversing that finding.

RULES OF PRACTICE: IMMEDIATE EFFECTIVENESS REVIEW (EFFECT ON APPEAL BOARD DECISIONS)

A Commission observation in its immediate effectiveness review concerning the adjudicatory record is not binding upon the Appeal Board. *See* 10 C.F.R. § 2.764(g).

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES

EMERGENCY PLANS: CONTENT (PROTECTIVE MEASURES)

Planning officials are required to develop "[g]uidelines for the choice of protective actions during an emergency." 10 C.F.R. § 50.47(b)(10). To this end, planners also are to "provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ [(i.e., emergency planning zone)] for transient and permanent populations." *Id.* Part 50, App. E. § IV.

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES; REGULATORY GUIDANCE (NUREG-0654)

An evacuation time estimate (ETE) should be prepared "based on a dynamic analysis (time-motion study under various conditions) for the [EPZ]." NUREG-0654 Criterion II.J. 10.*l*. *See also* Appendix A to NUREG-0654.

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES

"[T]he [ETE] analysis is intended to reflect a realistic time for completing an evacuation." *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220, 244 (1986); *see also Limerick*, ALAB-836, 23 NRC 479, 486 (1986). With this information in hand, "emergency coordinators can then decide what protective actions (e.g., sheltering or evacuation) are warranted in the circumstances, if a radiological emergency occurs." *Limerick*, ALAB-845, 24 NRC at 244; *see also Limerick*, ALAB-836, 23 NRC at 486.

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES

The ETE is only a planning tool; as such, Commission regulations establish no particular time limits for completing an EPZ evacuation. *See Limerick*, ALAB-845, 24 NRC at 244; *Limerick*, ALAB-836, 23 NRC at 486.

EMERGENCY PLANNING: REQUIREMENTS; RESPONSE PERSONNEL

There is no regulatory requirement that the State permanently assign existing police resources to a particular location to ensure that there are no staffing delays in the event of a radiological emergency. Simply because additional police resources will be needed in a particular location in the event of a radiological emergency and will require some period of time to arrive, this potential for delay does not require that permanent police staffing in that area be "beefed up" to a degree beyond what is otherwise required to provide adequate law enforcement protection under normal circumstances. *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 536

(1983), *rev'd in part on other grounds*, *GUARD* v. *NRC*, 753 F.2d 1144 (D.C. Cir. 1985).

RULES OF PRACTICE: OFFICIAL NOTICE

The Appeal Board may take official notice of the State of New Hampshire Traffic Management Manual accompanying the New Hampshire Radiological Emergency Response Plan. *See* 10 C.F.R. § 2.743(i).

EMERGENCY PLANNING: REQUIREMENTS

If a particular accident sequence requires that protective action be taken when state and local emergency response efforts are not fully mobilized, response officials would have to weigh whatever increased risks may be attendant upon taking a particular protective action (such as an evacuation) without having the planned response personnel in place.

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES; REGULATORY GUIDANCE (NUREG-0654)

In producing ETEs, planners should include "[e]stimates of transient populations . . . such as peak tourist volumes." NUREG-0654, App. 4, at 4-3.

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES; REGULATORY GUIDANCE (NUREG-0654)

For the ocean beach area within the EPZ, NUREG-0654's guidance to calculate the ETEs on the basis of "peak tourist volumes" is well served by the use of the "reasonable expectable occupancy" method (i.e., a method that uses an estimate of parked vehicles, as well as vehicles in transit, on a peak representative day).

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES

When the vehicle count used in calculating the ETE for the beach population was based on an estimate of the actual number of vehicles on a representative peak day and when "convincing unrebutted testimony" had been presented that there were "hidden vehicles," i.e., vehicles not observable from aerial photographs (and such number of vehicles was set forth in the Licensing Board's findings), the Board erred in not requiring that those hidden vehicles be incorporated within the appropriate ETE calculations.

EMERGENCY PLANNING: EVACUATION TIME ESTIMATES; REGULATORY GUIDANCE (NUREG-0654)

EMERGENCY PLAN(S): STATE AND LOCAL GOVERNMENT RESPONSIBILITIES

REGULATIONS: INTERPRETATION (10 C.F.R. PART 50, APP. E)

While there may be an independent responsibility on the part of the State to incorporate revised ETEs into an emergency plan, *see* NUREG-0654 Criterion II.J.10.*l*-m, the applicant rather than the State is responsible for preparing an amended set of ETEs, *see* 10 C.F.R. Part 50, App. E, § IV; NUREG-0654 Criterion II.J.8.

RULES OF PRACTICE: APPEAL BOARD DECISIONS (EFFECT ON LICENSE AUTHORIZATON)

When full-power authorization has been made effective, in remanding matters, the Appeal Board must consider the impact of its action upon that authorization. *Limerick*, ALAB-845, 24 NRC at 234; *Limerick*, ALAB-836, 23 NRC at 250; *see* CLI-90-3, 31 NRC at 230.

RULES OF PRACTICE: APPEAL BOARD DECISIONS (EFFECT ON LICENSE AUTHORIZATION)

When additional calculations mandated by the Appeal Board to correct an ETE deficiency do not require significant time or resources to complete and are not likely to result in a profound change in the present ETEs, an existing licensing authorization need not be vitiated. *See* 10 C.F.R. § 50.47 (c)(1).

EMERGENCY PLANNING: MEDICAL SERVICES ARRANGEMENTS

REGULATIONS: INTERPRETATION (10 C.F.R. § 50.47(b)(12))

When, in conformance with a Commission policy statement, applicants (1) had provided a list of local medical facilities capable of administering care to contaminated individuals, and (2) had committed to comply fully with any additional Commission requirements that might be imposed in response to a judicial determination overturning the Commission's previous interpretation of the scope of necessary medical services arrangements under 10 C.F.R. § 50.47(b)(12), the Licensing Board properly rejected an intervenor's contention challenging applicants' compliance with the requirements of 10 C.F.R. § 50.47(b)(12).

RULES OF PRACTICE: MOTIONS FOR SUMMARY DISPOSITION

When a party fails to controvert material facts as established by another party in support of a motion for summary disposition, they are effectively admitted. *See* 10 C.F.R. § 2.749(a).

ATOMIC ENERGY ACT: INTERPRETATION

EMERGENCY PLANNING: BASIS FOR REQUIREMENT

Emergency planning is an "adequate protection" standard under section 182 of the Atomic Energy Act (AEA). CLI-90-2, 31 NRC at 210-13.

EMERGENCY PLANNING: BASIS FOR REQUIREMENT; REQUIREMENTS

To determine whether an emergency plan provides "adequate protection," the plan must be assessed in terms of whether it meets the sixteen planning standards of 10 C.F.R. § 50.47(b). CLI-90-2, 31 NRC at 213, 217.

APPEARANCES

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Massachusetts, were on the brief), for the applicants Public Service Company of New Hampshire, *et al.*

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

DECISION

In ALAB-924,[1] we addressed a number of issues raised by intervenors Attorney General of Massachusetts (MassAG), the New England Coalition on Nuclear Pollution (NECNP), the Seacoast Anti-Pollution League (SAPL), and the Town of Hampton (TOH) in their appeal from the Licensing Board's December 30, 1988 partial initial decision on emergency planning for the New Hampshire portion of the plume exposure pathway Emergency Planning Zone (EPZ) for the Seabrook Station.[2] In this decision, we address the balance of those matters raised by intervenors' appeals regarding the New Hampshire Radiological Emergency Response Plan (NHRERP).[3] Specifically, we confront those issues advanced concerning the portions of the Licensing Board's decision entitled "Response Personnel Adequacy," "Human Behavior in Emergencies," and "Evacuation Time Estimates (ETEs)." In addition, we address a number of other issues raised by intervenors and include a further explanation regarding several matters in light of CLI-90-2,[4] the Commission's recent decision in which it discussed whether emergency planning requirements are "adequate protection" standards within the meaning of section 182 of the Atomic Energy Act of 1954, as amended (AEA).[5]

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[1] 30 NRC 331 (1989), *petitions for review pending*.

[2] LBP-32, 28 NRC 667 (1988).

[3] Unless otherwise indicated, all citations in this decision to the NHRERP are to Revision 2 issued in August 1986.

[4] 31 NRC 197 (1990), *petition for review pending sub nom. Massachusetts v. NRC*, No. 90-1132 (D.C. Cir. filed Mar. 7, 1990).

[5] 42 U.S.C. § 2232.

I. RESPONSE PERSONNEL ADEQUACY

Intervenors asserted before the Licensing Board that, in contravention of a number of regulatory standards including 10 C.F.R. § 50.47(b)(1) and Criterion II.A of NUREG-0654/FEMA-REP-1 (NUREG-0654),[6] the NHRERP planning process had failed to provide for adequate personnel resources from the State of New Hampshire and local governments to respond in the event of an emergency.[7] The Licensing Board found these charges to be without merit.[8] Before us, intervenors NECNP and SAPL have raised a variety of concerns relative to the Board's determination, including challenges to its findings on the adequacy of the survey process utilized to identify the response personnel resources, the need for findings by the Federal Emergency Management Agency (FEMA) on personnel resource adequacy prior to any Board hearing and decision on the subject, and the need for additional response personnel resources to relieve local workers who will require replacement under the plan's radiation exposure limitations.[9] Applicants and the staff urge that the Licensing Board's findings be affirmed on all counts.[10] In each instance, we find intervenors' complaints unpersuasive.

In response to FEMA concerns about whether there were sufficient State and local personnel resources for implementing the NHRERP and with the aid of State emergency planning officials, applicants' planning personnel conducted a survey

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[6] NUREG-0654/FEMA-REP-1 (Rev. 1), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Nov. 1980).

[7] *See* LBP-88-32, 28 NRC at 678.

[8] *Id.* at 691.

[9] New England Coalition on Nuclear Pollution's Brief in Support of Intervenors' Appeal (Mar. 24, 1989) at 15-26 [hereinafter NECNP Brief]; Seacoast Anti-Pollution League's Brief on Appeal (Mar. 21, 1989) at 28-34 [hereinafter SAPL Brief].

[10] Brief of Applicants-Appellees (Apr. 24, 1989) at 34-38 [hereinafter Applicants Brief], NRC Staff's Brief in Response to Intervenor Appeals (June 5, 1989) at 10-20 [hereinafter NRC Staff Brief].

intended to demonstrate staffing capability.[11] This survey process — the results of which ultimately were recorded in a document entitled the "Summary of Personnel Resource Assessment for the [NHRERP]" (SPRA) — was intended to provide an evaluation of personnel resources required to fulfill both the State and local emergency response duties.[12] Included is a resource appraisal for the six (out of seventeen) communities in the New Hampshire EPZ — Hampton, South Hampton, Hampton Falls, Kensington, Rye, and North Hampton — that declined to participate in emergency planning efforts.[13]

As part of that process, the planners' initial efforts were directed to identifying, by position and functional responsibility, all tasks that are required to be performed in fulfilling State or local emergency response functions.[14] Included were those duties for which two twelve-hour shifts are necessary to provide the twenty-four hour operational capability in accordance with planning guidance.[15] This "walk-through," as it was termed by the parties, was accomplished by having emergency planners review the provisions of the NHRERP for all State agencies and local governments with respect to each emergency response function to ensure that all assigned primary and secondary responsibilities were addressed.[16] Thereafter, the planners sought to identify every task required to carry out these responsibilities by agency, position, and function.[17]

Using the walk-through information, the planners then endeavored to identify "available" personnel resources to fill the necessary emergency response positions.[18] For municipal positions within the eleven communities participating in emer-

[11] Tr. 3191-92.

[12] *See* Applicants' Direct Testimony No. 3 (Personnel Resources), fol. Tr. 3228, at 3-10. *See also* Applicants' Exhs. 1 & 1-A (Summary of Personnel Resource Assessment for the [NHRERP]).

[13] Applicants' Exh. 1, at 2-4 to -33.

[14] Applicants' Direct Testimony No. 3, at 3, 9.

[15] *Id.* at 3-4, 9; Tr. 3290-93. *See generally* ALAB-924, 30 NRC at 362 n.125.

[16] Applicants' Direct Testimony No. 3, at 3, 9.

[17] *Ibid.*

[18] *Id.* at 4, 9.

gency planning, this was done by analyzing background data sources (including town plan appendices, town annual reports, and records of the New Hampshire State Police and Fire Standards and Training Commissions, the Bureau of Emergency Medical Service, and the New Hampshire Fireman's Association) and by conducting survey interviews with various local municipal personnel (including town selectmen, town managers, civil defense directors, police and fire chiefs, and health officials).[19] For the six communities that decided not to participate, the background data sources were utilized (generally without conducting a survey interview with local officials) to construct an organization chart illustrating how municipal personnel might be assigned to response positions.[20] In addition, key emergency planning responsibilities in these nonparticipating communities were catalogued, and State personnel who would fulfill those responsibilities in the event there was no local participation were identified.[21] For those positions within State agencies, personnel identification assessment efforts consisted primarily of interviews with principal emergency response personnel in each State agency with assigned responsibilities under the NHRERP, supplemented by a review of agency resource appendices in volumes 4, 4A, and 4B of the NHRERP and currently available State directories and other public records.[22]

A. Relying principally upon the direct and rebuttal testimony of professional personnel resource planner Clifford J. Earl,[23] intervenors NECNP and SAPL renew before us their assertions, which the Licensing Board rejected, that various critical deficiencies existed in the survey process. According to

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[19] *Id.* at 4.

[20] *Id.* at 5.

[21] Applicants' Exh. 1, at 3-3, 3-5 to -6.

[22] Applicants' Direct Testimony No. 3, at 9-10.

[23] Testimony of Clifford J. Earl Regarding Contentions NHLP-2, SAPL-8, SAPL-8A, and [TOH] Revised Contentions IV and VI, fol Tr. 3776, Rebuttal Testimony of Clifford J. Earl Regarding Contentions NHLP-2, SAPL-8, SAPL-8A, and [TOH] Revised Contentions IV and VI, fol. Tr. 8915 [hereinafter Earl Rebuttal Testimony].

intervenors, these include failure (1) to provide a definition of the term "available," and (2) to organize and supervise the survey process properly, which in turn resulted in other deficiencies in the survey. In addition, intervenor SAPL argues that the survey is insufficient to address the adequacy of response personnel resources in communities that have declined to participate in emergency planning.

1. Intervenors allege that a central shortcoming in the survey process is the failure to define, or the incorrect definition of, which State and local personnel are "available" to participate in emergency planning matters. In testimony before the Licensing Board, planning personnel declared that, for purposes of the survey and emergency response planning, individuals were considered to be "available" to provide services if they were within an organization or "pool" that was a candidate to perform a particular function.[24] For example, if a function was to be undertaken by fire department employees in a particular community, then the entire fire department staff generally was considered to be available as response personnel.[25] Intervenors, on the other hand, assert that availability of response personnel for planning purposes should be defined to include two components: (1) "temporal" availability, based upon each individual's ability to participate on a twenty-four hour basis, taking into account such factors as transportation resources, other responsibilities during off-duty hours, and the time required to get from home or work to an assigned emergency response post, and (2) "volitional" availability, based upon each individual's willingness to participate.[26] In its decision, the Licensing Board endorsed the "pool" concept utilized by planning officials in preparing the survey, stating that

[24] Tr. 3254, 3314, 3317, 3323, 3332.

[25] Tr. 3316. Planning officials indicated that, as part of the survey process, they did attempt to identify those individuals whose other job responsibilities might result in double-counting, such as a full-time fireman in one community who also serves as a volunteer fireman in another community. Tr. 3316-17.

[26] *See* NECNP Brief at 18; SAPL Brief at 29.

"[t]he issue of whether and when people will be there is an issue of planning and implementation, not personnel resources."[27] We find no error in the Board's conclusion in this regard.

With respect to the issue of temporal availability, as the Licensing Board noted, it is clear that no emergency respondent will be available at all times.[28] Health problems, business or pleasure travel outside the Seabrook area, and a variety of other factors could make an individual unavailable for a portion or all of the time of an emergency response. This, however, does not invalidate the "pool" concept upon which the SPRA is based. Rather, in viewing the matter as one of "planning and implementation," it is apparent that various measures are incorporated into the NHRERP planning scheme — e.g., cross-training of individuals within some personnel resource pools,[29] overstaffing for various emergency response functions,[30] and early mobilization of certain personnel[31] — that help ensure that the absence or delayed availability of particular individuals will not significantly impair emergency planning efforts.[32] Moreover, as FEMA witnesses observed before the Licensing Board, a judgment about the effect of

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[27] LBP-88-32, 28 NRC at 681-82.

[28] *Id.* at 682.

[29] Tr. 3325-27. For instance, in many local fire departments (which generally provide between one-third and three-quarters of the personnel for the response personnel pool for participating municipalities, *see, e.g.*, Applicants' Exh. 1, at 2-58, 2-70, 2-74), individuals within that organization are being cross-trained so that they can be assigned a variety of tasks as they report for duty during an emergency. *See* Tr. 3326-27.

[30] Applicants' Exh. 1, at 3-7.

[31] *See* Tr. 3492 (State incident field office staffed at Alert stage); Tr. 4099-100 (State police traffic control staffing at Alert stage).

[32] On the matter of temporal availability, intervenors NECNP and SAPL also raise concerns about the ability of response organizations (i.e., the New Hampshire State Police and the National Guard) to have personnel in place to provide an "immediate" response to a fast-breaking accident sequence. NECNP Brief at 8, 18 n.6; SAPL Brief at 31-32. As we discuss more fully in responding to a similar challenge to "availability" in relation to time estimates for evacuation, these concerns have been considered and adequately addressed in the planning basis for the NHRERP. *See infra* pp. 412-13.

"temporal" availability upon emergency response generally would be made in reviewing plan implementation, i.e., in the context of a full-scale exercise during which state and local personnel must be mobilized to a degree sufficient to verify response capability.[33]

Similarly, for the matter of "volitional" availability, FEMA witnesses stated that it would not be that agency's normal practice to have state emergency planning officials inquire as to who within the various state and local response personnel "pools" is "willing" to participate in emergency planning.[34] Rather, the agency would expect state planners generally would address this issue of "availability" through a gradual process of staff identification, including monitoring of participation in training sessions and drills, with the ultimate FEMA evaluation on the matter being made "during the course of an exercise in terms of people turning out."[35]

The Licensing Board's (and FEMA's) conclusion that any determination about the temporal and volitional "availability" of response personnel is more properly addressed and evaluated as part of the "planning" and "implementation" process, including the full-scale exercise, is a reasonable one that is not at odds with any existing regulatory requirements.[36] Conse-

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[33] Tr. 4072, *see* NUREG-0654 Criterion II.N.1.b.

[34] Tr. 4087-88.

[35] Tr. 4074; *see* Tr. 4055, 4088, 4096-97.

[36] Citing 10 C.F.R. § 50.47(b)(1), *id.* Part 50, App. E, § IV.D.3, and Criterion II.A.4 of NUREG-0654, intervenors assert that a general showing of "availability," as they define it, is mandated by regulations and planning guidance. NECNP Brief at 15-18; SAPL Brief at 32-33. We find no basis in these provisions for such a requirement.

The declaration in section 50.47(b)(1) that each principal response organization must have "staff to respond and to augment its initial response on a continuous basis" and the guidance in NUREG-0654 Criterion II.A.4 that "[e]ach principal organization shall be capable of continuous (24-hour) operations for a protracted period" do not require or suggest any particular time by which a response organization must be "fully staffed" or any particular method by which staffing adequacy must be demonstrated. Similarly, section IV.D.3 of Appendix E to 10 C.F.R. Part 50, while mandating that the licensee must have the capability to notify state and local officials within 15 minutes of declaring an emergency and that the capability must exist to

quently, in the absence of any compelling showing by intervenors that significant segments of those in the response personnel "pools" being relied upon as a principal planning basis to establish personnel resources adequacy are for one reason or another likely to be "unavailable," which has not been made in this instance,[37] we find no need for NHRERP planners to

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notify the public of a situation requiring urgent action within 15 minutes of notifying state and local officials, does not require any particular time for full staffing or any particular method by which staffing adequacy must be demonstrated. Indeed, this requirement may well provide for a public notification capability that will in some instances exceed the ability of all response personnel to be in place. If public notification and activation of an emergency response will precede complete mobilization, however, that could be a factor to be weighed in determining what response action is appropriate. *See infra* pp. 412-13.

[37] Intervenor SAPL does attempt to make a showing in this regard based upon two instances in which State officials conducted surveys intended to provide information on the availability of personnel from the State Department of Health and Human Services (HHS) to respond to emergency situations, including an accident at Seabrook. SAPL Brief at 34, 45-46. Whether considered separately or together, however, these situations fail to provide a basis for drawing a negative inference about *all* response personnel sufficient to mandate additional inquiry into the issue of "availability," as intervenors desire.

SAPL first points to a questionnaire circulated to employees of the HHS Division of Public Health Services (PHS) to gauge whether enough PHS employees would be available to perform Seabrook-related emergency response duties in the State emergency operations center, the State information field office, and in evacuee reception centers. Some employees did respond to the survey by indicating they declined to participate in emergency response activities; nonetheless, enough workers stated they would participate to fulfill the division's staffing responsibilities. *See* Tr. 3410-11. This example thus provides no support for intervenor's position.

Likewise unavailing is SAPL's reliance on the results of an additional survey of employees in the district offices of several HHS divisions other than PHS. This survey was intended to identify the reasons why more of the approximately 645 employees in the district offices were not volunteering to participate in the Emergency Service Units (ESUs) that provide State response support in emergency situations generally, including manning evacuation reception centers for Seabrook. Tr. 4780-81, 4797. Survey results indicated that approximately 43% of those responding were not willing to provide emergency assistance as part of an ESU, with approximately 28% of that group giving the reason for their nonparticipation as possible involvement in Seabrook emergency response activities. Tr. 4784-85; *see* SAPL

have made a separate "availability" showing as part of the process undertaken to identify those "pools."[38]

2. In addition to rejecting intervenors' arguments about "availability," as part of the survey process, the Licensing Board's finding regarding response personnel resources reflects a judgment that, notwithstanding intervenors' challenges, the survey was otherwise adequate to identify the personnel resources (i.e., the "pools") needed to carry out emergency planning functions. Before us, intervenors again press their position that this is not, in fact, the case.

Principally on the basis of Mr. Earl's testimony, intervenors assert that the survey's methodology generally was inadequate, focusing particularly on what they counted was defi-

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Exhs. 3-5. Putting aside the fact that the Licensing Board determined, and we have agreed, that SAPL's particular concern regarding a shortfall of HHS volunteers as it impacts on the adequacy of reception center operations is effectively addressed by maintaining rosters of available individuals, LBP-88-32, 28 NRC at 719-20, *aff'd*, ALAB-924, 30 NRC at 361 n.121, and the fact that the 43% nonparticipation figure was never statistically validated, when this figure is applied to the entire complement of approximately 980 HHS workers from the district *and* headquarters offices of the divisions involved, all but a few of which could be called upon in a Seabrook emergency response, Tr. 4802-04, there still would be in excess of 500 employees that could be expected to participate. This is more than sufficient to meet the ESU planning basis requirement of 430 responding employees. *See* Applicants' Exh. 1-A.

[38] It may well be that in specific instances, the response role played by a particular individual or group will give additional import to concerns about planning for the "availability" of those who will fill those roles. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-83-22, 18 NRC 299, 302, 307-08 (1983) (despite proposed compensatory measures, licensee proposal not to have fully activated Emergency Operations Facility (EOF) within one hour of site emergency determination due to four-hour travel time necessary for Emergency Support Director to arrive at EOF does not provide same degree of public health and safety protection). *See also* NUREG-0654 Criterion II.I.8 (appropriate response organizations shall provide for "rapid" assessments of offsite radiological hazards resulting from accident, including equipment and estimated manpower deployment times). Intervenors, however, have not raised such particularized concerns in challenging response personnel resource adequacy under the NHRERP.

cient supervision and coordination.[39] As the Licensing Board noted, however, the evidentiary hearing record supports the conclusion that the survey process was properly designed and supervised and that it provided accurate data.[40] In contrast, despite obtaining extensive discovery relating to the survey and an opportunity to present witnesses, intervenors' evidence (in the form of Mr. Earl's testimony) was wholly lacking in any

[39] Relying on the previously mentioned testimony of Mr. Earl, intervenors also contend that the survey was inadequate because there was a failure to calculate properly the workload for the response positions. A central reason given is the failure to weigh "timing" considerations in setting workloads.

In a variation on their arguments about the importance of "temporal" availability, referring particularly to the arrival of traffic control personnel at their posts during an evacuation, intervenors suggest that the survey was inadequate because, in determining how many people were needed to do a task, one must take into account when particular individuals will arrive to perform those duties. *See* NECNP Brief at 7-8, 19-20; SAPL Brief at 29, 31-32. For the reasons stated in our discussion concerning "availability" as a factor in time estimates for evacuations, *see infra* pp. 412-13, we find these assertions unpersuasive in this context as well.

In addition, declaring that the applicants' testimony concerning the walk-through process indicated only that it involved a "reading of the procedure," NECNP maintains that this would not reveal enough information about the procedure and the time necessary to carry out the procedure, thereby adding to the uncertainty over how many people were required to perform that task. NECNP Brief at 7, 20 n.8. As the Licensing Board noted, however, applicants' witness Anthony Callendrello testified that there was in fact more, including "'a reading of the procedure, an analysis of each step, and a determination against objective criteria as to whether there was one person, more than one people *[sic]*, whatever the number needed to perform this step.'" LBP-88-32, 28 NRC at 683 (quoting Tr. 3278). More to the point, and contrary to intervenor's assumption, in conducting the walk-through, planners need not undertake a "mini" emergency drill for each response procedure. The fact that emergency planning professionals making the analysis may have made certain assumptions about response actions (such as how long telephone calling procedures would take), rather than actually conducting and timing each of the activities, does not present any basis for declaring their analysis inadequate. This is particularly so in the face of intervenors' failure to present any convincing evidence that any specific assumptions were substantially flawed. Moreover, as with "availability" issues, it seems apparent that a full-scale emergency exercise generally will verify (or show the inadequacy of) many of the assumptions that have been made.

[40] LBP-88-32, 28 NRC at 684.

convincing evidence of actual deficiencies arising from the process.

This lack of any specific, meaningful evidence of deficiencies is epitomized by the example from Mr. Earl's testimony, highlighted by intervenor NECNP in its brief,[41] that apparently was posited to establish that emergency planners were not provided with proper criteria for defining the type of information they were to obtain. Mr. Earl refers to Question 2 on the survey form used for interviewing local officials to determine local personnel needs, which directs the interviewer to:

> Ensure there are primaries and alternates for each [Emergency Operations Center] position designated in the plan as 24 hour staffing. Attach a list/roster identifying positions which require primary and alternate staffing. (Interviewer to obtain 24 hour staffing information. Refer to Section III, Selectman's Emergency Preparedness Responsibilities and Appendix A.)[42]

According to Mr. Earl, this instruction was deficient because it failed to indicate how the intervenor should obtain twenty-four hour staffing information, how he or she should determine the staffing needs for each position, or what it means to "ensure" the existence of primaries and alternates for each position.[43]

Review of the referenced section of the NHRERP for each particular locality makes it apparent exactly what is expected. The "selectman's" portion of section III, found in subpart B, includes a listing of the positions for which there is to be a "primary and alternate," and Appendix A gives a call list of the individuals who are to fill these positions.[44] To follow this instruction, therefore, the interviewer merely had to ensure that in Appendix A there is an individual listed as a primary or

[41] NECNP Brief at 11.

[42] Earl Rebuttal Testimony at 22-23.

[43] *Ibid.*

[44] *E.g.*, NHRERP (Town of Seabrook), Vol. 16, at III-2, A-1.

alternate for each designated position in subpart B and then prepare a roster from this information. Moreover, once the results from this and other survey questions were assembled, they were reviewed for consistency and accuracy before being utilized in the SPRA.[45] In this case, the survey process resulted in a table for each municipality designating the twenty-four hour staffing positions,[46] the accuracy of which have not been specifically challenged before us. Accordingly, we fail to see how Mr. Earl's concern is illustrative of any deficiency in the survey process.[47]

As the Licensing Board observed, Mr. Earl's testimony is more a statement of how the survey might have been done differently (and, in Mr. Earl's opinion, better) than an attempt to address the more pertinent issue of how the process that was used resulted in data that are insufficient or inaccurate.[48] The Board properly concluded that the testimony of Mr. Earl was

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[45] *See* Tr. 3240-43, 3246-48, 3290-93.

[46] *E.g.*, Applicants' Exh. 1, at 2-73 (Figure 2.3-10, Seabrook Emergency Response Organization).

[47] Also unpersuasive in this regard is SAPL's assertion, based upon the testimony of William Renz, applicants' consultant who had responsibility for preparation of the assessment summary, that the survey process was deficient because of a purported failure of management personnel to interview systematically those individuals who collected the data and to establish common terminology for use by survey officials as they conducted their interviews with local officials to get input on community response personnel. SAPL Brief at 30. Like the Licensing Board, *see* LBP-88-32, 28 NRC at 684, we find such complaints unavailing in light of the overall record support for the efficacy of the survey process and intervenor's failure to present any firm evidence establishing how these alleged operational deficiencies produced incomplete or incorrect results.

We also do not agree with SAPL's complaint that the survey process was deficient because, in assigning a response task, no consideration was given to a person's competence to do that task. SAPL Brief at 30. As senior planning personnel testified, in certain instances when it was necessary because of the response duties involved, individual assignments were made on the basis of the person's present duties and responsibilities; in other instances, individuals within a particular personnel pool would be cross-trained to fulfill any of a number of duties that were assigned to the pool. *See* Tr. 3325-27.

[48] LBP-88-32, 28 NRC at 684.

inadequate to establish material failings in the survey process.[49]

3. The other major intervenor challenge to the survey's validity is based upon the testimony of police and other local officials from several of the nonparticipating communities.[50] The officials testified that the planning basis for these local communities, devised without their cooperation or input, failed to reflect adequate personnel resources. SAPL asserts that the Licensing Board erred in failing to credit properly the

[49] Intervenor NECNP also takes umbrage at the Licensing Board's refusal to credit Mr. Earl's testimony on personnel resource planning based, in part, on the ground that his expertise and experience were not in the field of emergency planning. NECNP Brief at 21-22. Mr. Earl's failure to back up his discourse on the weaknesses of the survey with any specific evidence of inaccuracies resulting from the process is, to our mind, more crippling to intervenor's position than his lack of specific emergency planning experience. Nonetheless, it is apparent that, especially when compared to planners Anthony Callendrello, Paul Frechette, and William Renz, who had principal responsibility for the resource assessment program, including the survey process, Tr. 3198, 3203-04, 3238, Mr. Earl is lacking in that respect. *Compare* Qualifications of Anthony M. Callendrello, fol. Tr. 2790; Qualifications of Paul R. Frechette, Jr., fol. Tr. 2791; Resume of William F. Renz, fol. Tr. 3185 *with* Resume of Clifford J. Earl, fol. Tr. 3776.

Although NECNP's attempts on appeal to bolster Mr. Earl's expertise by now arguing that he had crisis management experience that would have been revealed if he had been cross-examined, NECNP Brief at 21 n.9, we find this assertion frivolous. We are not aware of any civil law principle that permits a party, having failed to put forth allegedly relevant information on direct examination, to claim that information nonetheless should be considered because the information was not elicited during cross-examination.

Finally, we reject SAPL's assertion that purported deficiencies relating to letters of agreement also strengthen Mr. Earl's testimony. SAPL Brief at 29. In ALAB-924, 30 NRC at 345, we found those allegations were without substance.

[50] Corrected Prefiled Testimony of Dona Janetos on Behalf of [TOH] Regarding TOH Revised Contentions III, IV, VI, fol. Tr. 3597 [hereinafter Janetos Testimony]. Corrected Prefiled Testimony of Sergeant Victor DeMarco and Detective William Lally on Behalf of [TOH] Regarding TOH Revised Contentions III, IV, VI, fol. Tr. 3659 [hereinafter DeMarco and Lally Testimony]; [SAPL]'s Testimony of Suzanne Breiseth on SAPL Contentions 8 and 8A Relative to the Town of Hampton Falls, fol. Tr. 3739, [SAPL]'s Testimony of Andrew Christie, Jr. on SAPL Contentions 8, 8A, 16, 31 and 37 Relative to the Town of Hampton Falls, fol. Tr. 3740; Prefiled

testimony of these local officials.[51] We find these arguments without merit as well.[52]

On the matter of adequate resources for local emergency response organizations in nonparticipating communities, the issues upon which intervenor would have us focus are, in light of the record here, of no relevance to the adequacy of emergency planning. While these witnesses sought to call into question some of the determinations made by planners in establishing the numbers and assignments for local response personnel in those municipalities, intervenors failed to present any evidence effectively countering applicants' showing, embodied in the SPRA,[53] that there are adequate State personnel available to fulfill the key emergency response duties within the nonparticipating communities.[54] Thus, intervenor's complaints fail to negate the Licensing Board's finding that there will be ade-

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Testimony of Walter F. Shivak on [SAPL]'s Contentions 8 and 8A and Town of South Hampton Contentions 2, 3 and 8 Relative to the Town of South Hampton, fol. Tr. 3780; Direct Testimony of Sandra Fowler Mitchell on SAPL Contentions 8 and 8A and Town of Kensington Contention 1 Relative to the Town of Kensington, fol. Tr. 3805 [hereinafter Mitchell Testimony]; Amended [SAPL] Testimony of David P. McDonald on SAPL Contentions 8 and 8A Relative to the Town of Rye, fol. Tr. 3867; Testimony of Richard W. Ingram on SAPL Contentions 8 and 8A Relative to the Town of North Hampton, fol. Tr. 4479.

[51] SAPL Brief at 31.

[52] In line with intervenors' general concern about "availability" of response personnel, several of these officials also suggested that it would take too long for State resources, particularly State police, to respond to make up for inadequacies resulting from local nonparticipation. *See id.* at 31-32. Our response to a similar concern with respect to estimates of evacuation times addresses this matter as well. *See infra* pp. 412-13.

Local officials also testified that resource deficiencies would result because some local emergency response personnel would not respond. *See* SAPL Brief at 58. We deal with the issue of emergency worker response *infra* under the heading of "Human Behavior in Emergencies."

[53] *See* Applicants' Exh. 1, § 3.

[54] By way of example, we note the testimony of one local witness whose assertion that there would be personnel deficiencies in an emergency was apparently based upon a misapprehension of the number of personnel required for 24-hour manning. *Compare* Mitchell Testimony at 2 *with* Applicants' Exh. 1, at 2-7 to -8.

quate personnel to respond in the nonparticipating communities.[55]

B.1. Finally on the issue of response personnel adequacy, intervenors make two arguments that can be dealt with in short order. First, intervenor NECNP asserts that the Licensing Board violated the precepts of 10 C.F.R. § 50.47(a)(2) by holding hearings and rendering a judgment concerning the adequacy of response personnel resources under the NHRERP prior to submission of planning information sufficient to allow FEMA to make findings concerning that issue. Specifically, NECNP contends that any Board consideration of the matter of response personnel resources adequacy had to await FEMA review of several items, including the SPRA and FEMA's "primary tool for evaluating the adequacy of personnel resources," the full-scale exercise.[56]

Previously, in response to a similar assertion in the *Zimmer* proceeding, we observed that "[s]ection 50.47(a)(2) does not require deferment of any hearing on State and local government emergency response plans to await FEMA's issuance of final findings on those plans. Rather, what that [s]ection contemplates is a licensing decision based on the best available

[55] In this regard, we agree with the Licensing Board that the complaints lodged by local officials about the SPRA's provisions for local personnel response seem largely to arise from matters directly attributable to their own nonparticipation, rather than to fundamental deficiencies in the survey process. *See* LBP-88-32, 28 NRC at 687-88. For instance, the potency of one town official's complaint that the duties assigned to particular response positions were too burdensome is substantially diminished by the apparent lack of effort on her part to bring the matter to the attention of State officials so the alleged deficiencies could be corrected. *Compare* Janetos Testimony at 4-5 *with* Tr. 3342-47. The same is true for the complaints of several local police officers about the use of local part-time special officers based on their belief that these special officers did not have the proper skills. *See* DeMarco and Lally Testimony at 12-13. As FEMA witnesses stated, with proper training these individuals could perform the assigned responsibilities, FEMA Prefiled Testimony, fol. Tr. 4051, at 45, making this a matter that undoubtedly could be rectified readily if the community were to participate in emergency planning efforts after all.

[56] NECNP Brief at 22-24.

current information on emergency preparedness."[57] In *Zimmer*, we also noted that it is for the Licensing Board to judge at exactly what stage a plan is sufficiently developed to allow for hearings and a decision, taking into account the evidence on the current state of the plan.[58]

While FEMA officials had not had an opportunity to review the personnel response survey at the time of the hearing and indicated at the hearing that they could not make any final adequacy determination until New Hampshire had incorporated the survey as part of its planning basis, they did declare that the survey, in and of itself, represented "substantial progress" towards remedying FEMA's previous concerns about response personnel resource inadequacies.[59] Given this FEMA recognition of the central role of the survey in addressing its concerns, we cannot say that the Licensing Board abused its discretion in proceeding with hearings on the issue and in making findings without awaiting further FEMA review of the matter.[60]

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[57] *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 775 (1983) (citation and footnote omitted). *See also Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-776, 19 NRC 1373, 1379 (1984); *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 379-80 (1983).

In *Zimmer*, we also expressed concern that an interpretation of section 50.47(a)(2) requiring a final FEMA finding would be at odds with the then-existing FEMA/NRC Memorandum of Understanding, which provided that FEMA will offer its preliminary views on the state of offsite emergency preparedness based on the plans currently available to FEMA. 17 NRC at 775 & n.21 (citing 45 Fed. Reg. 82,713 (1980)). Although that memorandum of understanding subsequently was revised, *see* 50 Fed. Reg. 15,485 (1985), we see nothing in the amended version to change our conclusion in that regard.

[58] *Zimmer*, 17 NRC at 775.

[59] Tr. 4098, 4109, 4166.

[60] We fail to see why the Board's findings relative to the personnel resources adequacy had to await a FEMA finding on the results of a full-scale exercise, which in this proceeding was subject to challenge in a later hearing. *See* LBP-89-32, 30 NRC 375, 615-50 (1989), *appeals pending*. Moreover, as applicants and the staff point out, Applicants Brief at 37; NRC Staff Brief at 15 n.14, FEMA did make final findings of adequacy on this issue, albeit after the conclusion of the hearing on the NHRERP. *See* Applicants' Exh. 43D, at

2. The second matter, raised by intervenor SAPL, concerns the adequacy of replacement workers for local personnel who may be withdrawn from emergency response activities because they have reached radiation exposure limits. Under the NHRERP, the specified limit for local emergency workers in 5 roentgens (R) rather than the 25R limit allowed by the Environmental Protection Agency's Protective Action Guides (PAGs). This 5R limit for local emergency workers also is the same as the highest value for whole body dose established by the PAGs for the general population.[61] SAPL asserts that the 5R exposure limit "could be delivered to a large number of the 1300 State and local emergency workers relatively quickly under certain scenarios," thereby resulting in severe personnel shortages because of a lack of an adequate backup pool of trained workers.[62]

SAPL's argument fails to acknowledge several important points concerning the planning basis upon which the 5R exposure level rests. Management of emergency worker exposure based upon tracking and reporting procedures incorporated in the NHRERP would include rotation of assignments among local emergency response workers or assignment removal for any individual whose radiation exposures indicate a trend toward the 5R limit.[63] It is not expected, however, that this generally will be necessary. Because local emergency worker exposure limits fall within the range established by the PAGs for the general public and because local response personnel have no emergency assignments to perform after protective actions for the public have been completed, these workers would take the same protective actions at the same time as the last of the general public, thereby restricting their exposure to the

30-31 (FEMA Review and Evaluation of the State of New Hampshire Radiological Emergency Response Plan for Seabrook Station (Dec. 1988)). Although the option was open to them, *see Zimmer*, 17 NRC at 776, none of the intervenors sought at that time to reopen the record or to file late contentions regarding the adequacy of FEMA's findings.

[61] Applicants' Direct Testimony No. 3, at 14-15.

[62] SAPL Brief at 33.

[63] Applicants' Direct Testimony No. 3, at 14.

same level as that incurred by the public.[64] Those post-protective action activities that must be undertaken, such as access control to excluded area, field monitoring, plume tracking, and environmental sample collection are to be undertaken by State emergency workers, who under the NHRERP are subject to the specified emergency worker PAG of 25R.[65] Through this mechanism, the State's goal of limiting local worker exposure to that of the general public is to be met, although it is not intended that local emergency responsibilities will be allowed to go unmet prior to the public's completion of any prescribed protective actions.[66] In the absence of any convincing showing by intervenors contravening this planning basis, the Licensing Board properly concluded that, even with the lower local worker exposure levels, there will be adequate State and local response personnel available to carry out their duties in the event of a radiological emergency.

II. HUMAN BEHAVIOR IN EMERGENCIES

Again relying upon the Commission's criteria relative to adequate emergency response personnel resources, as well as its requirements and guidance regarding such matters as the preparation of protective action guidelines, before the Licensing Board intervenors challenged the NHRERP's purported failure to consider and to compensate adequately for what they assert will be nonresponsive or disruptive behaviot by emergency personnel and others.[67] The Licensing Board found these challenges to be meritless. The Board's decision in this regard is now contested by the MassAG, SAPL, and TOH. Their concerns center on two areas: (1) whether behavior by the general public, especially automobile drivers, will disrupt significantly the evacuation process; and (2) whether those

[64] *Id.* at 15-16.

[65] *Id.* at 15.

[66] *Id.* at 16.

[67] *See* Applicants' Direct Testimony No. 7 (Evacuation Time Estimate and Human Behavior in Emergencies), fol. Tr. 5622, at 2-9.

with emergency response duties, particularly school teachers, will respond to fulfill their responsibilities in the event of a radiological emergency at Seabrook. With respect to the first matter, we find that the adjudicatory record supports the Licensing Board's finding that behavior by the general public will not prevent an adequate emergency response under the NHRERP. Our review of the record relevant to the second concern had led us to conclude that those expected to provide assistance under the NHRERP, including school teachers, will respond to perform those duties necessary to ensure an adequate emergency response.

A. In its December 1988 decision, the Licensing Board concluded that, in the event of a radiological emergency at the Seabrook Station, panic and disruptive behavior on the part of the general public, and particularly on the part of those using automobiles as a means of evacuation transportation, will not seriously impede response to protective action recommendation.[68] Intervenors MassAG and SAPL maintain that significant aberrant behavior will occur and that planners have failed adequately to factor it into emergency planning efforts with regard to matters such as evacuation route blockage and providing for a sufficient number of traffic control personnel on area highways.[69]

As support for their position that such behavior will be a significant factor, intervenors cite testimony by local police officers, town officials, and residents describing disorderly driver behavior, particularly during the summer tourist season when traffic is heavy, that has included refusal to follow established traffic patterns and driving on the roadway shoulder or in oncoming lanes.[70] Also, referencing testimony from these witnesses concerning traffic blockages and delays that have arisen in the past from accidents, breakdowns, and stalled vehicles during heavy summer traffic periods, intervenors assert that

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[68] LBP-88-32, 28 NRC at 747, 749-50.

[69] Massachusetts Attorney General's Brief on Appeal (Mar. 24, 1989) at 4-5, 20-24 [hereinafter MassAG Brief], SAPL Brief at 62-63.

[70] MassAG Brief at 21-24; SAPL Brief at 62-63.

the same types of behavior and problems are likely to arise (and be much worse) during a summertime evacuation from the beach area. These problems, in conjunction with disorderly driver behavior, assertedly will hinder the flow of traffic out of the area and the progress of response personnel and emergency vehicles (e.g., tow trucks) into the area so as to render effective emergency response an impossibility under the NHRERP.

As additional support for the proposition that disorderly behavior will be a significant factor in an evacuation, the MassAG relies upon the "beach blanket" survey of over 580 beachgoers conducted for intervenors by sociologist Dr. Albert E. Luloff.[71] In this regard, the MassAG notes that the evidence before the Licensing Board concerning the survey showed that slightly more than a fifth of the surveyed beachgoers indicated they would not follow a policeman's instructions on which evacuation routes to use; another twenty percent said compliance would depend on the circumstances and the instructions; and nearly forty percent indicated they would abandon their cars during an evacuation if they had not moved very far after three hours in the vehicle — factors that the MassAG contends demonstrate a grave potential for traffic disorderliness. The MassAG also asserts that the Licensing Board failed to give proper consideration to the testimony of his traffic expert, Dr. Aveshai Ceder, who declared that accident rates in the congested flow traffic conditions during a summertime evacuation would be substantially higher than under normal conditions.[72] Added to this, intervenor SAPL contends, is the Board's failure to give appropriate weight to the intervenor-sponsored testimony of social geographers Drs. Donald J. Zeigler and James H. Johnson, Jr., and radiologist Dr. Donald L. Herzberg regarding the general population's fear of radiation, and to testimony of local residents concerning the specific conditions at the Seabrook site, including the visibility of the plant to

[71] MassAG Brief at 24.

[72] *Id.* at 25-26.

drivers attempting to exit the beach area.[73] This testimony, intervenors assert, provided substantial additional support for their position that, notwithstanding the efforts of planners embodied in the NHRERP, there will be panic and aberrant behavior in the event of a radiological emergency that will have the effect of impeding seriously emergency response efforts.

Both the applicants and the NRC staff support the Licensing Board's determination that intervenors' concerns about aberrant, disorderly behavior and its effects are greatly exaggerated. They further assert that, in reaching this conclusion, the Board properly relied upon the testimony of applicants' witness Dr. Dennis S. Mileti, a sociologist and Director of the Hazards Assessment Laboratory at Colorado State University.[74]

As they impact upon human behavior generally, Dr. Mileti declared that emergencies are unique situations.[75] He also stated that mass emergencies (such as might arise at Seabrook) that could pose a collective threat to an entire community are, in terms of behavioral effect, in a class by themselves.[76] Although acknowledging that there is some dispute on the issue,[77] on the basis of empirical research accumulated over three decades regarding public behavior in geological, climatological, and technological emergencies, Dr. Mileti asserted that mass emergencies transform both group and individual goals and objectives in a singular manner:

> The first priority for virtually all people who find themselves in such a collective threat situation becomes the collective safety of people and the community at large.

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[73] SAPL Brief at 59-61, 63.

[74] Applicants Brief at 28-30, NRC Staff Brief at 32-37. Although the applicants presented direct testimony on the issues of evacuation time estimates and human behavior through a panel, Dr. Mileti was solely responsible for the human behavior portion of the testimony. *See* Tr. 5627, 6304.

[75] Applicants' Direct Testimony No. 7, at 94.

[76] *Ibid.*

[77] Tr. 6382-83, 6414-17.

> People abandon personal forms of identification and personal interests, and they identify with the entire human collective or community that is threatened. This "shift" in the human character has come to be known by many names, for example, the "therapeutic community."
>
> The change or "shift" in the social psychological complexion of social life and human behavior results in a variety of principles that emerge to document the character of emergency behavior. This includes, for example, a dramatic decline in activities and behavior that run counter to the good of the collective and those that are based in individual or personal interests, and a dramatic increase in acts and behavior that bring people together and help one another.[78]

Dr. Mileti also declared that this shift would "undoubtedly" occur in an emergency at the Seabrook plant, as it has occurred in every mass emergency that has been the topic of investigation (and has been evident even in emergencies where it was not specifically investigated).[79] As a consequence, Dr. Mileti rejected the notion that the "thin-veneer of civilization" is stripped from human behavior during mass emergencies, declaring instead that "[p]ublic behavior is rational, and the emergency goals of helping themselves as well as others take precedence over almost all else; the character of human spirit is strong when faced with mass emergencies and most people rise to the occasion."[80] He concluded, therefore, that concerns that aberrant driver behavior (e.g., accidents, misuse of incoming lanes and highway shoulders, abandoned vehicles)

[78] Applicants' Direct Testimony No. 7, at 94-95 (citation omitted). *See also id.* at 105. Dr. Mileti further testified that the concept of the "therapeutic community" was not tied to a situation in which the individuals involved knew each other; instead, it would apply in any situation in which people experience a common threat from a rapidly developing external force. Tr. 6438, 9426-27.

[79] Applicants' Direct Testimony No. 7, at 95.

[80] *Id.* at 96.

would create substantial emergency response impediments were unfounded.[81]

Dr. Mileti also refused to accept the thesis that the "unique" nature of radiological accidents renders general behavioral principles such as the "therapeutic community" concept inapplicable. Dr. Mileti declared that, while the descriptive accounts of how people respond to emergencies will vary from one emergency to the next, the determinants of human behavior — the reasons why people respond in different ways to an emergency — are transferable across emergency types.[82] As a result, he was unwilling to accept the argument that, by their very nature, radiological events are so unique that they are subject to a unique set of behavioral precepts.[83] This assumption, according to Dr. Mileti, contradicts the basic social science premise that there are knowable reasons and patterns in human behavior that are discoverable through systematic scientific inquiry.[84]

In addition, Dr. Mileti disputed the alternative formulation of the radiological "uniqueness" argument, which recognizes that there are knowable determinants of human behavior but nonetheless concludes that "fear" of radiation based upon its allegedly "unique" characteristics (e.g., invisibility) is so pronounced that human behavior in radiological emergencies will be radically different from behavior in nonradiological emergencies.[85] Dr. Mileti acknowledged that there are differences between radiological emergencies and nonradiological emergencies, including a difference in the way the public, on average, perceives the risks involved in a radiological emergency.[86]

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[81] *Id.* at 101-05. By way of example, Dr. Mileti noted that, although the NHRERP calls for the use of tow trucks to remove vehicles that might be stalled or abandoned in the course of an evacuation, it was also reasonable to assume that the public will act on its own to aid in the evacuation by pushing abandoned or stalled vehicles out of the way. *Id.* at 102-03. *See also* Tr. 6396.

[82] Applicants' Direct Testimony No. 7, at 137-38.

[83] *Id.* at 138; *see* Tr. 6426.

[84] Applicants' Direct Testimony No. 7, at 138.

[85] *Ibid.*

[86] *Ibid.*

He declared, however, that these differences do not negate the efficacy or "quality" of the behavioral determinants that have been recognized as applying generally to mass emergency situations.[87] Instead, the relevance of these differences is in terms of their impact on the "value" or "quantity" that the determinant should be afforded when analyzing its influence on human behavior.[88] In developing an emergency plan, therefore, what is important in Dr. Mileti's view is to identify the applicable behavioral determinants, to account for the determinant "values" or "quantities" that are applicable in that emergency situation, and, to the degree they produce undesirable effects or constraints on emergency response behavior, to take appropriate compensating measures.[89]

In examining the particular issue of the public's perception of risk as invoking detrimental behavioral responses in a radiological emergency, Dr. Mileti noted that for most people in an emergency, "situational perceptions of risk" are a leading determinant of behavioral response.[90] According to Dr. Mileti, in an emergency people do not undertake a "knee-jerk" response; rather, they react on the basis of their perception of the risk, which is derived from their understanding of the situation as it is being experienced.[91] One element of situational risk perception could be pre-emergency risk perception or "pre-emergency fear" — that is, how the individual perceived the risk prior to the emergency.[92] In the case of radiological emergencies, Dr. Mileti acknowledged that the data collected so far "would lead one to conclude that in general the mean of hazard risk perception is higher for radiological hazards than for natural hazards."[93] In his opinion, however, this "fear"

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[87] *Ibid.*

[88] *Id.* at 139.

[89] *Ibid.*

[90] Applicants' Direct Testimony No. 7, at 151; Tr. 6340.

[91] Applicants' Direct Testimony No. 7; *see* Tr. 6324. Thus, according to Dr. Mileti, situational risk perceptions are based upon what people "perceive is the risk and what to do about it, and it is those perceptions which are formed during the emergency that guides their behavior." Tr. 6324.

[92] Tr. 6339.

[93] Tr. 6430.

element, as well as others that potentially could impose constraints on sound emergency public response,[94] can be overcome by utilizing properly what he perceives as the key determinant of situational risk perception formulation — emergency information. In this regard, he declared:

> [I]n the context of good emergency planning addressing the key determina[nt] of situational risk perception formation, which is emergency information, we can presume that the EPZ in the future is filled with totally fearless people and/or totally fearful people, or what's most likely the case, a range of people along that continuum, and design the emergency information that goes to the public in such a way that we can help the fearless

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[94] In addition to pre-emergency fear, Dr. Mileti noted that age and gender also can play a role in constraining sound situational risk perception. Applicants' Direct Testimony No. 7, at 151-52. According to Dr. Mileti, research findings indicate that, in the face of less-than-desirable emergency information, women are likely to perceive risk to be higher than men and are more likely to engage in protective actions, *id.* at 152, and that older people generally have a harder time coming to believe they are at risk so that, in the face of infrequent warnings, they are less likely to engage in protective actions than younger persons, Tr. 6355-57.

In the context of his "therapeutic community" concept, Dr. Mileti also was unwilling to endorse the notion that "panic" would be a critical factor in public response to a radiological emergency. He described panic as "persons so concerned about themselves that they step on the persons' [sic] next to them's [sic] face and not notice it in an attempt to flee what they consider to be a life and death situation [in which] if they don't act immediately death will come to pass." Tr. 9411; *see* Applicants' Rebuttal Testimony No. 5, fol. Tr. 9408, at 3. He declared further that the circumstances in which panic might result, which generally would involve fear for immediate physical survival with escape routes blocked (such as might exist in a major fire at a crowded theater or nightclub), are not present in a radiological-emergency because people would be leaving an open geographic space, whether by car or otherwise, and accordingly would not perceive that their escape was "blocked" so as to make death imminent. Applicants' Rebuttal Testimony No. 5, at 3-4; *see* Tr. 9415-16. Further, although Dr. Mileti acknowledged that "in the world of all human possibilities" some individuals might panic in a radiological emergency, he also stated that he was unaware of any empirical evidence to support the proposition that human behavior in collective emergencies is characterized by panic. Tr. 9413.

> and the fearful come to form accurate risk perceptions in the emergency, and help them make good decisions about how to behave.[95]

Thus, providing "good" emergency information is of central importance in neutralizing factors that might otherwise retard a positive response to an emergency situation by the "therapeutic community." Further, on the basis of his review of the proposed Emergency Broadcast System (EBS) messages for the NHRERP, which he considered should and would be the focus of public attention in a radiological emergency, Dr. Mileti concluded that these messages, with some modifications, should provide "the listening public a most solid footing from which to base sound decision-making."[96]

As further support for the proposition that aberrant behavior will not be a factor in an emergency response, both applicants and the staff direct our attention to the testimony of the staff's traffic expert, Dr. Thomas Urbanik.[97] Dr. Urbanik's testimony that there is no evidence that aberrant driver behavior has been a factor in any evacuation in the history of the United States was found by the Licensing Board to be persuasive and uncontradicted by intervenors.[98]

After reviewing the positions of the various parties and the record evidence upon which they rely, we find that the Licensing Board acted reasonably and in accordance with its role as the Commission's primary fact-finding tribunal in concluding that aberrant behavior on the part of the general public, particularly automobile drivers, will not be a significant impediment in the event of an emergency at Seabrook. Anyone who has ever been behind the wheel of, or been a passenger in, an

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[95] Tr. 6342.

[96] Applicants' Direct Testimony No. 7, at 155-56, 159.

[97] Applicants Brief at 29 (citing Testimony of Dr. Thomas Urbanik II on Behalf of the NRC staff on [TOH] Contention III, and SAPL Contentions 18, 31, 34, and 37, fol. Tr. 7372, at 17; Tr. 7485-86); NRC Staff Brief at 33-34 (same). Dr. Urbanik's credentials are described in more detail *infra* at note 220.

[98] LBP-88-32, 28 NRC at 746.

automobile no doubt can relate a tale of aberrant driver behavior similar to (or worse than) those told by the intervenors' police and civilian witnesses. Indeed, human nature being what it is, we entertain no illusions that a radiological emergency at Seabrook will engender no "aberrant" behavior on the part of drivers and others.[99] The critical point, however, and one that Dr. Mileti's expert testimony on the "therapeutic community" addresses directly, is that such behavior will not be the norm or, indeed, a sufficiently significant consideration so as seriously to impede effective emergency response under the NHRERP.[100] This conclusion is further bolstered by Dr. Mileti's testimony concerning the role of emergency information in countering the public's "pre-emergency fear" and the adequacy of the Seabrook emergency information for that purpose, as well as by Dr. Urbanik's unrebutted observation that there is no evidence that aberrant driver behavior has ever played a significant role in an evacuation situation.

To be sure, intervenors have presented testimony challenging these conclusions. Much of their expert evidence is, however, of questionable probative value.[101] The same can be said

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[99] In fact, as SAPL notes, SAPL Brief at 62, making reference to his own father, Dr. Mileti recognized it is possible in an emergency evacuation situation that some individuals will engage in individual, rather than community-oriented, behavior. Tr. 9432. He was not, however, willing to characterize this behavior as "probable" or "the behavior of most people." *Ibid.*

[100] *See* Applicants' Rebuttal Testimony No. 2, fol. Tr. 9407, at 2-3; Tr. 9432-33. In this regard, although Dr. Mileti stated that he was not an expert on "driver behavior," contrary to intervenors' assertions, *see* MassAG Brief at 28, SAPL Brief at 63-64, the Licensing Board's conclusion that he demonstrated sufficient expertise in human behavior in emergency situations to be qualified to testify on driver behavior in such situations was reasonable. Given his expertise, Dr. Mileti's testimony is certainly more probative than that of Dr. Herzberg, whose testimony on disruptive behavior is championed by intervenor SAPL. *See* SAPL Brief at 59, 60-61. Indeed, the latter's expertise in diagnostic radiology and nuclear medicine and the very limited nature of his experience in radiological emergency response (i.e., as a participant in a medical facility's portion of an emergency drill) provide a wholly insufficient basis for affording Dr. Herzberg's opinions the weight intervenor asserts they should have. *See* LBP-88-32, 28 NRC at 713.

[101] For instance, the validity of Dr. Luloff's "beach blanket survey," upon which the MassAG relies (as does SAPL in the context of its argument con-

for the testimony of their lay witnesses.[102] Nonetheless, even if we accept the crux of intervenors' position that others, includ-

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cerning reception centers, *see* SAPL Brief at 50) as problematic. Applicants have identified a number of alleged deficiencies in the survey that they assert were revealed in cross-examination of Dr. Luloff and their own rebuttal testimony challenging the external and internal validity of the survey. *See* Applicants Brief at 28 n.7 (citing Applicants' Rebuttal Testimony No. 4, fol. Tr. 9155, at 13-15 and Tr. 8220-65 (cross-examination of Dr. Luloff)). Relying on the applicants' discrediting of Dr. Luloff's survey, the Licensing Board thus described the survey as "flawed." LBP-88-32, 28 NRC at 747.

The MassAG challenges this Licensing Board conclusion on the basis of the Board's refusal to permit him to file surrebuttal testimony addressing these criticisms of the survey. MassAG Brief at 27; *see* Offer of Proof ([MassAG] Proposed Surrebuttal Testimony to Applicants' Rebuttal Testimony Nos. 3 and 4) (Feb. 26, 1988). The admission of surrebuttal testimony is a matter within the discretion of the Board, particularly in instances such as this in which the party sponsoring the testimony reasonably should have anticipated the attack upon its evidence (i.e., the validity of the methodology used in conducting the survey and interpreting its results). *See Cellular Mobile Systems* v. *FCC*, 782 F.2d 182, 201-02 (D.C. Cir. 1985).

The MassAG also contends that compelling evidence supporting his traffic disorderliness thesis is found in the testimony of his transportation science expert, Dr. Aveshai Ceder. MassAG Brief at 25-26. Dr. Ceder averred that the extent and duration of traffic congestion indicates a high probability, indeed a virtual certainty, that serious, injury-producing accidents will occur during an evacuation. *See* Corrected Testimony of Aveshai Ceder on Behalf of the [MassAG] on SAPL 31 and TOH III (Evacuation Road Capacities), fol. Tr. 5169, at 24-27; Tr. 5374-75. As applicants and the staff point out, however, Applicants Brief at 24; NRC Staff Brief at 36-37, the MassAG does not acknowledge that he (like SAPL with regard to its reception center argument noted *supra*, *see* NRC Staff Brief at 29) failed to present this assertion to the Licensing Board. *See* [MassAG]'s Proposed Findings of Fact and Rulings of Law (May 19, 1988). The MassAG's argument is thus foreclosed by the "settled principle of appellate practice that an appellant is ordinarily precluded from pressing issues or advancing arguments not presented to the trial tribunal." ALAB-924, 30 NRC at 358. Nor do we find any reason here to invoke the narrow "serious substantive issues" exception to this principle. *Ibid.* This is particularly so because Dr. Ceder's conclusions rest in large part on the questionable premise that research concerning traffic incidents at highway construction zones, which would include "work zones" (i.e., an area with barricades, cones, and traffic guides) situated along stretches of open roadway, can be equated profitably with the circumstances that will exist during an evacuation in which the "work zone" (i.e., the traffic control point or access control point, *see infra* note 174) will be at an intersection and in a traffic flow expected to attain, on average, speeds in the vicinity of 10 miles per hour. *See* Tr. 5338-45, 5362.

[102] The lay testimony referred to *supra* at pp. 391-92, was offered by intervenors to establish that the "unique" character of the Seabrook site enhanced

ing recognized experts, legitimately hold conflicting views about the likelihood and effects of aberrant behavior in a radiological emergency, "the possibility that inconsistent or even contrary inferences could be drawn if the views of the [intervenors'] experts were accepted does not prevent the trial board's findings from being supported by substantial evidence."[103] In this instance, after giving the Licensing Board's factual findings the probative force they intrinsically command,[104] we find no occasion to gainsay the Board's findings on aberrant behavior by the general public.

B. In addition to challenging planning assumptions concerning the general public's behavior in an emergency, before the Licensing Board intervenors attacked the planning premise

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the likelihood that in the event of an emergency there would be serious disruptive behavior, particularly by drivers during a lengthy evacuation. Countering intervenors' assertions on this score, however, is the testimony of staff expert Dr. Urbanik who declared:

> Certainly Seabrook is unique, but there have been extensive periods of congestion where people have been stuck in their cars for hours and hours before they have arrived at their destination. So, it is not black and white. I mean it is not that we have got one just like Seabrook. But on the other hand, it is not like there is not anything that is not like it at all.

Tr. 748. Further, citing as an example the extensive evacuation in the early 1960s of 200,000 people from the Texas coast brought on by Hurricane Carla during which evacuees were in traffic "for hours and hours," Dr. Urbanik concluded that for "major, large-scale evacuations" there was "no experience with accident problems; no experience with aberrant behavior. Nothing empirically that would lead us to the conclusion that people are going to act out of the way that we want them to act, if they are stuck in traffic for hours." Tr. 7489-90. We find nothing in intervenors' lay testimony that is sufficient to demonstrate that the actions of those involved in an emergency situation at Seabrook would be significantly different from those described by Dr. Urbanik.

We also fail to see how the 1972 "youth riot" in the beach area referenced by SAPL as evidence of potential disorderliness, *see* SAPL Brief at 61, has much of anything to do with human behavior during natural or technological emergencies.

[103] *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858, 866 (1975) (citations omitted).

[104] *See* ALAB-924, 30 NRC at 367 & n.165; *Bailly*, 2 NRC at 867.

that emergency workers would react appropriately in the event of a radiological emergency at Seabrook. Specifically, intervenors asserted that abandonment of emergency response roles by both professionals and volunteers, including law enforcement officials, school personnel, and bus drivers, would create significant deficiencies in emergency response efforts.

Intervenors maintained below that the testimony of Drs. Zeigler and Johnson established that significant numbers of emergency workers would abandon or delay performing their response duties in an effort to protect themselves and their families.[105] As support for their position that emergency worker role abandonment would be a serious problem in a radiological emergency, these witnesses relied upon a number of different sources. Among them were sociological research suggesting that in times of disaster families tend to want to be together and to evacuate together; "disaster literature" assertedly establishing that those in emergency response roles who experience a conflict because of their family responsibilities inevitably will abandon their emergency worker roles; several recent studies purporting to show emergency role abandonment during the 1979 accident at Three Mile Island (TMI); surveys of school bus drivers, volunteer firefighters, and teachers within the vicinity of the Shoreham and Diablo Canyon nuclear facilities indicating a strong concern for the welfare of their families in the event of an emergency; and a telephone survey of local residents in which some forty percent of the individuals who identified themselves as having emergency response roles in the event of a Seabrook emergency stated that they would delay reporting for duty until they had assured themselves of the safety of their families.[106]

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[105] *See* LBP-88-32, 28 NRC at 735. In addition, as will be seen later, intervenors presented other witnesses who addressed specifically the likely response of schoolteachers to a Seabrook radiological emergency.

[106] Testimony of Donald J. Zeigler, James H. Johnson, Jr., and Stephen Cole on Behalf of the [MassAG] on SAPL Contention 7, SAPL Contention 8A, SAPL Contention 15, SAPL Contention 25, SAPL Contention 31, [TOH] Contention III and [TOH] Contention IV, fol. Tr. 7849, at 40-53.

To counter intervenors' presentation, applicants again proffered testimony by Dr. Mileti. He acknowledged that individuals play many different societal roles with different rights and obligations.[107] He also observed that, while there may be instances in which an individual's different roles will appear to "conflict," this does not necessarily mean that the person will engage in behavior that constitutes abandoning one of those roles entirely.[108] Rather, the individual is more likely to experience "role strain," in which he or she is subject to a mental state of concern and uneasiness.[109] Dr. Mileti maintained that such role strain is a permanent feature of social life and something with which people must cope in most societal situations.[110]

Dr. Mileti conceded that some of the early literature on disasters and emergencies describes behavior that appears to demonstrate that an emergency worker's role conflict between family responsibilities and emergency response duties inevitably will be resolved in favor of the family role, thereby contributing at least initially to disorganization in disaster response efforts.[111] It was his assertion, however, that this research failed to take into account a significant factor: the individual's pre-emergency conception of the role he or she should be playing in response to an emergency.[112] According to Dr. Mileti, other research that has focused on this factor demonstrates that when an emergency worker's role is clearly defined prior to the emergency — "perhaps through training and planning" — emergency workers will not abandon their response roles.[113] In this regard, Dr. Mileti stated that pre-emergency training and planning measures can be effective in combatting the possibility of role abandonment because they give the

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[107] Applicants' Direct Testimony No. 7, at 106.
[108] *Id.* at 106-07.
[109] *Id.* at 107.
[110] *Ibid.*
[111] *Id.* at 107-11.
[112] *See id.* at 112-17.
[113] *Id.* at 117-19.

worker a clear idea of his or her responsibilities and of the degree to which the community and other emergency workers are depending upon him or her in an emergency.[114] These measures also provide information that will make the worker aware of the nature of the risk involved and the utility of family contingency plans to ensure that the emergency worker can fulfill his or her responsibilities without concern for the safety of family members.[115]

On this latter point, Dr. Mileti also declared that, if an emergency worker has not already made advance plans for someone (a spouse, relative, neighbor, or other appropriate person) not involved in emergency response to take measures to protect his or her family, in seeking to alleviate any mental "role strain" he or she will act by improvising measures to ascertain whether family members are safe.[116] His judgment thus was that "emergency workers who know of their emergency roles in advance of an emergency perform their emergency functions in the event of an emergency."[117] Finally, summarizing the data concerning emergency worker role abandonment, Dr. Mileti concluded that "a large body of historical evidence shows the functioning of emergency organizations is not hampered by failure of emergency workers to perform their jobs" and that, "[w]hile role abandonment may be theoretically possible, it is certainly extremely rare, and consequently it does not reduce organizational effectiveness."[118]

In reviewing the conflicting expert testimony, the Licensing Board found "very persuasive" Dr. Mileti's interpretation of the research or emergency response phenomena and his conclusions concerning the central function of emergency worker role certainty in negating role abandonment.[119] The Board also determined that the intervenors' evidence concerning role

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[114] *Id.* at 124.

[115] *Ibid.*

[116] *Id.* at 120-21.

[117] *Id.* at 124-25.

[118] *Id.* at 125.

[119] LBP-88-32, 28 NRC at 739.

abandonment during the TMI accident provided little support to counter Dr. Mileti's conclusions. Its determination in this regard was based principally on the Board's conclusion that, because there was no effective radiological emergency response planning and few emergency role assignments with respect to TMI, there was no reliable evidence of the existence of the type of worker role certainty that Dr. Mileti's analysis indicated would significantly deter role abandonment.[120] The Board additionally found that, even if it accepted intervenors' survey evidence on local emergency worker responses as statistically reliable (which applicants asserted it was not), the survey nonetheless was unpersuasive. The Board noted that the survey's significance for intervenors' witnesses rested on their assumption that, because overloaded switching equipment would make telephone contact impossible during an emergency, the one-third of emergency worker survey respondents who declared they would check on their families by telephone before reporting for emergency duty would become frustrated and ultimately would abandon their duties to seek out their families.[121] The Board concluded, however, that this premise was faulty because the record concerning telephone communication during a radiological emergency at Seabrook established it was very unlikely that an emergency worker (or anyone else) would experience lengthy delays in successfully completing telephone calls.[122] The Board declared further that, with this assumption discarded, the survey results in fact suggest that some ninety percent of the emergency workers questioned would either report immediately or after a short delay while checking upon their families, thereby demonstrating widespread role acceptance rather than role abandonment.[123] Thus, accepting the analysis of Dr. Mileti in preference to that

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[120] *Id.* at 741.

[121] *Id.* at 736.

[122] *Ibid.* The Licensing Board's findings regarding the availability of telephone service in the event of an emergency, *see id.* at 727-28, have not been challenged before us by intervenors.

[123] *Id.* at 736.

put forth by the intervenor witnesses, the Licensing Board concluded that role abandonment by those with emergency response duties under the NHRERP generally would not constitute a serious obstacle to an effective emergency response in the event of a radiological accident at Seabrook.[124]

Before us, intervenors do not challenge the Licensing Board's conclusions concerning role abandonment by emergency workers generally.[125] Instead, intervenors SAPL and TOH have mounted a narrower attack, asserting that the evidence before the Board did not support its conclusion that schoolteachers would fulfill their particular emergency response role under the NHRERP.[126]

With respect to school teachers, a major focus before the Licensing Board was on the weight and effect to be afforded to the sworn testimony of thirteen teachers concerning their own response, and the response of teachers generally, in the event of a Seabrook emergency. The Board described teachers' responsibilities under the NHRERP as including accounting for the students in their direct care, taking those students to a central place in the school in order to allow for a school-wide accounting to be made (and to engage in sheltering if that is the recommended protective action), and accompanying the students on school buses to the reception centers that would be the students' destination in the event of an evacuation.[127] The

[124] *Id.* at 749. For the reasons addressed in our discussion concerning behavior of the general public, *see supra* pp. 394-97, the Licensing Board also rejected an intervenor assertion that fear of radiation would result in role abandonment by emergency workers. *See* LBP-88-32, 28 NRC at 741-42.

[125] Although SAPL notes that the Licensing Board, citing the "realism/best efforts" presumption regarding state and local governmental nonparticipation in emergency planning, refused to credit the testimony of local officials that they and other public officials would not respond in the event of a radiological emergency, *see id.* at 728-29, 732-35, it does not contest that determination. SAPL Brief at 58.

[126] *See* SAPL Brief at 58-61, Town of Hampton's Brief in Support of Appeal (Feb. 10, 1989) at 36-42.

[127] LBP-88-32, 28 NRC at 729-30. Under the terms of the NHRERP, teachers' duties also would extend to staying at the reception centers until the children are claimed by their parents or legal guardians or the teachers are relieved by other personnel. *E.g.*, NHRERP (Hampton Special Facilities Plans), Vol. 18A, at F.3-6.

teachers, however, testified that, acting upon the belief that in the event of a Seabrook emergency their own children and other dependents would be in grave danger because of the unworkability of the NHRERP, they would promptly leave their students without performing any of these duties in order to care for their own families.[128] Further, on the basis of their attendance at meetings and conversations with other teachers, the teachers predicted that almost all of the teachers in the Seabrook EPZ would act similarly in the event of an emergency.[129] Also in support of this point, the teachers described the results of a survey they and other teachers conducted that indicated that, for nearly all the teachers in fifteen schools within the EPZ, only four percent were willing to implement the NHRERP.[130] In addition, intervenors introduced into evidence a petition signed by 597 teachers from schools within the EPZ that stated "[w]e DO NOT accept the conflicting duty which the Emergency Response (Evacuation) Plan assigns us. We believe it is inappropriate to expect us to provide emergency support for our students during a nuclear accident which would simultaneously place our families in danger."[131]

In considering the teachers' testimony, the Licensing Board described twelve of the thirteen teachers as "serious, fair-minded, and . . . sincere" and declared it had "no reason to believe that the teachers appearing before us have any less commitment to their pupils than do other teachers."[132] The Board also stated that it accepted the central theme of the teachers' testimony that they believe "that in a radiological emergency at Seabrook . . . there will be chaos; there will be

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[128] *See* Corrected Prefiled Testimony of [Thirteen Teachers] Regarding [TOH] Revised Contentions IV and VI and [SAPL] Contentions 8, 8A, and 15, fol. Tr. 3945, at 3, 8-9 [hereinafter Teachers' Direct Testimony].

[129] *Id.* at 5.

[130] *Id.* at 5-8.

[131] TOH Exh. 10.

[132] LBP-88-32, 28 NRC at 731. The Licensing Board rejected the testimony of the thirteenth teacher on the basis that her views were "hopelessly biased" because of her activities, including attempted disruption of the Board's hearings, as an official of an anti-Seabrook organization. *Ibid.*

an unworkable plan in effect, protective information will be unreliable, and their pupils will be in danger."[133] The Board found that essential to the teachers' prediction of pupil abandonment was "the belief that their own children and dependents will simultaneously be in danger — their children's teachers having also abandoned their pupils."[134] In this regard, referencing testimony by Dr. Mileti to the effect that role conflict is not generally a concept applied critically to one facing a choice of roles, the Board concluded that the teachers "believe that they will select the role of parent rather than that of emergency worker, having rejected the latter status."[135]

Despite these findings, the Board discounted the teachers' testimony and the other intervenor evidence on teacher role abandonment. The Board found the petition and the survey unconvincing because they failed to provide a basis for concluding that the teachers involved actually believed that a radiological emergency at Seabrook would place their dependents in danger or that those signing the petition were told they would be abandoning their students.[136] In addition, it concluded that the dozen educators who testified were not representative of teachers in general because "[e]ach had his or her own reasons for volunteering to appear at the hearing," and "[h]undreds of teachers did not volunteer to testify."[137] The Board also found that the teachers' expressed doubts about the workability of emergency planning under the NHRERP were groundless because "[t]he teachers do not claim to be experts on emergency planning" and "provide no reasoned basis for their assumption" that chaotic conditions will prevail after a Seabrook emergency.[138] Further, the Licensing Board rejected the notion that not enough teachers "would accept evacuation with their pupils" or at least "*see*

[133] *Ibid.*
[134] *Ibid.*
[135] *Ibid.*
[136] *Id.* at 731-32.
[137] *Id.* at 732.
[138] *Ibid.*

their pupils to the school buses" based on its expectation that, while not all teachers will engage in "heroic behavior," they nonetheless will "perform better than the general population in an emergency."[139] Declaring that schoolteachers' reactions would be mixed, the Board concluded that "[s]chool teachers and school officials, as a group, will not abandon their pupils in the event of a radiological emergency at Seabrook."[140]

Intervenors SAPL and TOH assert that, in light of the twelve teachers' testimony, the Licensing Board's general conclusions that it expected teachers to perform better than the general public and to carry out the duties assigned to them in the NHRERP are baseless. Applicants and the staff urge that the Board's decision regarding teacher behavior be affirmed.[141] We do so, although for reasons that, at least in part, differ from those put forth by the Board in its December 1988 decision.

Given the subject matter involved — the safety of schoolchildren — the sworn testimony by these dozen "serious, fair-minded, and . . . sincere" teachers is disquieting. Their declarations that, notwithstanding the tasks attributed to them by the NHRERP, in the event of an announcement of a Seabrook emergency they promptly would leave their students in order to take care of family members and other dependents are particularly troubling when viewed in conjunction with the petition signed by 597 other teachers and the survey, both of which suggest similar actions would be undertaken by a number of other teachers.[142] Thus, it undoubtedly is an under-

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[139] *Ibid.* (emphasis in original).

[140] *Id.* at 749.

[141] Applicants Brief at 13-14, NRC Staff Brief at 31-32.

[142] In concluding that the dozen teachers who testified were not "representative" of other teachers, the Board made particular reference to the fact that "[h]undreds of teachers did not volunteer to testify." *Id.* at 732. The significance the Board apparently attributes to the number of teacher witnesses is questionable, however, for it fails to account for the testimony of one teacher witness who stated that, as the president of the 350-member Portsmouth Teachers Association, he was speaking for the association and he was confident that the testimony of the teachers on the panel was in agreement with

statement to characterize this evidence, as the Licensing Board did with respect to the petition, as "demonstrat[ing] that many teachers are concerned about having a role in the school emergency plans."[143]

Nonetheless, we conclude that, at least insofar as teachers are performing duties corresponding to those they generally undertake in connection with their normal duties and responsibilities, the Licensing Board was correct in its ultimate conclusion that teacher role abandonment does not pose a substantial barrier to an adequate emergency response under the NHRERP. In arriving at the conclusions critical to its determination concerning teacher response, the Licensing Board chose to "ponder the testimony of the teachers on our own, free from the advice of experts."[144] We find, however, that various aspects of Dr. Mileti's expert testimony on human behavioral responses in emergencies, particularly his testimony on emergency worker responses, provide substantial additional support sufficient to assure us that the intervenor-sponsored evidence concerning emergency response by teachers does not warrant a different result.[145]

In reviewing the teachers' testimony, we find relevant Dr. Mileti's conclusion, discussed *supra* in the context of behavioral responses of the general public, that pre-emergency perceptions of risk, and of one's response to that risk, provide

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that of the association's members. Tr. 4024-25. The Board's reference also does not recognize that, as intervenor counsel observed in introducing the teacher petition, "by reason of sheer numbers" the 597 signatories could not appear to testify. Tr. 3938. Indeed, it is doubtful, given the logistical considerations involved, that if all 597 had sought to testify, that would have been permitted. Finally, the Board's statement does not acknowledge that there apparently was no testimony presented from even one teacher to the effect that he or she *would* carry out the role assigned by the plan.

[143] LBP-88-32, 28 NRC at 730.

[144] *Id.* at 731.

[145] In this regard, we note also that SAPL asserts that the Licensing Board erred in its treatment of teacher behavior by stating that the "realism/best efforts" presumption embodied in 10 C.F.R. § 50.47(c)(1)(iii) "should apply to teachers as well as to other government leaders." LBP-88-32, 28 NRC at 731. Given the doubtful role of New Hampshire public and private school-

an uncertain guide to behavior in an actual emergency.[146] In this instance, the teachers' declarations that in an emergency they would leave their students in the classrooms in order to be with their own families, apparently without taking any measures to provide for the children's safety, are like those responses Dr. Mileti declared would not be the norm for the public in emergency situations and, in any event, would seem unlikely for professional educators.

We also find Dr. Mileti's testimony on "role certainty" for emergency workers pertinent to our conclusion that there will be a sufficient emergency response on the part of school personnel. As we previously described in some detail, it is Dr. Mileti's expert judgment that awareness of a response role and familiarity with the particular responsibilities and duties of that role impart certitude to the action of those being relied upon to respond in an emergency and deter role abandonment.[147] The teachers' responses to the survey and the petition leave no doubt that teachers generally are aware that under the NHRERP they have responsibilities,[148] teachers' emergency responsibilities parallel in great measure those duties

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teachers as government officials, *see* ALAB-924, 30 NRC at 344 n.25, SAPL's point is not without merit. Nonetheless, as the staff suggests, *see* NRC Staff Brief at 31, because there is adequate record support for the Board's ultimate conclusion, particularly in view of Dr. Mileti's testimony concerning human behavior, it is not apparent that the rule's presumption was (or need be) utilized in a manner having any substantive effect upon this aspect of the proceeding. Thus, even if mistaken, the Board's "best efforts" statement was harmless error.

[146] *See supra* p. 395.

[147] *See supra* pp. 399-400.

[148] *See supra* p. 402. *See also* Tr. 3977, 4014. The teachers' testimony suggests that they were unable or unwilling to receive training concerning the exact nature of their Seabrook-related emergency duties. *See* Teachers' Direct Testimony at 9-10; Tr. 4013-14. Nonetheless, given their experience with procedures for regular and early dismissals (i.e., for snow storms and other occurrences), both of which generally involve accounting for their students and supervising them until their transportation home arrives, *see* Tr. 3950, 4009-11, we find this of little moment in terms of the teachers' role certainty.

[149] Tr. 4030-31.

they perform as part of their normal, daily, on-the-job activities. Hence, consistent with Dr. Mileti's general emphasis on familiarity with response duties as a factor in role certainty, it is reasonable to conclude that their familiarity with and acceptance of their day-to-day responsibilities creates a high degree of "role certainty" and a correspondingly high probability that in an emergency teachers will act in sufficient numbers to perform their usual roles.[150]

In our previous discussion in ALAB-924 concerning the need for letters of agreement (LOAs) to confirm the participation of school personnel in response activities, we suggested that some, but not all, of the responsibilities assigned to teachers by the NHRERP correspond to their normal, everyday duties. In this regard, we observed that, as part of its discussion of human behavior issues relating to teachers, the Licensing Board found teachers' bus escort duties (which the Board declared rendered them emergency "service providers") different from their other NHRERP responsibilities to account for the children in their care and to see that they are safely aboard transportation.[151] The apparent basis of the Board's finding was that their bus escort duties go beyond those for which teachers ordinarily are responsible.[152] Subsequently, we concluded that this "service provider" designation, in conjunction with the lack of any evidence in the record to show that the bus escort duty was one for which teachers normally were responsible, indicated a need for confirmatory LOAs to cover that escort activity and remanded the matter to the Board for further consideration.[153] Now, in reviewing the Board's

[150] Because of the potential for "doubling up" on supervisory and other roles among school personnel, role abandonment generally would become a concern only if it occurs with some frequency. *Cf. Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-832, 23 NRC 135, 151 (1986) (intervenor evidence regarding teacher role abandonment insufficient because it failed to establish there would not be the minimum number of teachers needed for proper supervision), *rev'd in part on other grounds*, CLI-87-12, 26 NRC 383 (1987).

[151] ALAB-924, 30 NRC at 342-43.

[152] *See* LBP-88-32, 28 NRC at 730.

[153] ALAB-924, 30 NRC at 343-44.

human behavior findings relating to teachers, we find that Dr. Mileti's "role certainty" principle also supports the view that teachers will perform many of their NHRERP-assigned duties (including accounting for and supervising the children and assuring their safe boarding of evacuation buses) because those responsibilities correspond sufficiently to their usual duties.[154] But, by the same token, even with Dr. Mileti's testimony, we remain troubled about whether this can be said with respect their role as escorts on the student evacuation buses.[155] This role may necessitate the teachers' traveling for indefinite periods of time considerable distances from their school and very

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[154] Consistent with its earlier determination that teachers generally are not "providers" of emergency services for purposes of determining whether LOAs are required, *see* LBP-88-32, 28 NRC at 673, the Board did not rely heavily upon Dr. Mileti's expert testimony concerning the responses of "emergency workers" in resolving the human behavior issues relative to teachers. *See supra* note 144 and accompanying text. We have no reticence in this respect, however, because we find that Dr. Mileti's expert analysis concerning emergency worker responses, as described *supra*, is consistent with our analysis, as expressed in ALAB-924, 30 NRC at 342-44, of the need for confirmatory LOAs to encompass certain aspects of participation by school personnel in an emergency response.

[155] In this regard, we are aware that in its discussion of emergency worker role abandonment, referencing testimony of Dr. Mileti at Tr. 6(6)25-26, the Licensing Board declared that Dr. Mileti's "role certainty" principle "provides excellent support for the Board's own view that teachers as a group are highly unlikely to abandon their schoolchildren in an emergency." *See* LBP-88-32, 28 NRC at 740-41. While the cited testimony could be seen as covering all duties assigned to teachers under the NHRERP, without regard to whether the duties correspond to teachers' normal responsibilities, we question this interpretation on two counts. First, in denoting in his testimony the specific emergency duties that teachers would perform, Dr. Mileti stated that "I perceived that [teachers'] role in a radiological emergency would be to get the school children on to evacuation buses and/or sheltered, depending upon the type of recommended protective action." Tr. 6625. These, however, are the type of on-the-school grounds, accounting/supervisory activities we have concluded teachers can be counted on to perform. Further, although Dr. Mileti subsequently stated that "I don't know of one emergency in the history of this country where teachers have abandoned their children and not done what they needed to do," *ibid.*, we find this seemingly broader statement of teachers' duties of questionable relevance in determining whether they will act as bus escorts given the evidence, discussed *infra*, indicating that teachers are not "needed" for that role.

likely their homes and families. Moreover, if a teacher embarks on a bus for the potentially lengthy trip to a reception center, the teacher's opportunity to engage in actions designed to alleviate "role strain" (e.g., calling home to check upon family members) could be severely hampered, if not foreclosed, thereby adding to the possibility that role abandonment might occur.

In the circumstances, however, we need not resolve this second matter. In providing its explanation in LBP-88-33 of why our remand of the LOA issue in ALAB-924 was not cause to delay the effectiveness of its November 1989 decision authorizing issuance of a full-power license for Seabrook, the Licensing Board considered the issue of whether the "bus escort" activity of teachers was necessary for effective emergency response and concluded that it was not.[156] In appraising this Licensing Board explanation in its own decision on whether to make the Board's full-power authorization immediately effective, the Commission declared:

> [I]t does not appear that there is any reason why the evacuation of schoolchildren will be delayed or will not occur even if *no* teachers or other school personnel agree to accompany the children on evacuation buses. The Licensing Board noted that Richard Strome, then New Hampshire's Director of Emergency Management, while hoping that teachers would participate, stated that their participation is not "key to the process" and observed that schoolchildren usually get on school buses without assistance and that teachers do not regularly travel on the buses.[157]

Made, as it is, in the context of the Commission's immediate effectiveness decision, this observation is not binding upon

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[156] 30 NRC 656, 660, *supplementing* LBP-89-32, 30 NRC 375 (1989), *appeals pending*.

[157] CLI-90-3, 31 NRC 219, 234-35 (1990) (emphasis in original), *petition for review pending sub nom. Massachusetts* v. *NRC*, Nos. 90-1132, 90-1218 (D.C. Cir. filed Mar. 7 and Apr. 27, 1990).

us.[158] Indeed, the *need* for teachers as bus escorts was not an issue the parties placed before us in any of the matters raised on appeal concerning LBP-88-32 or in a motion to reconsider our determination concerning LOAs for school personnel in ALAB-924. Nonetheless, in the present context of our review of intervenors' appeals regarding human behavior issues, we cannot disregard the record evidence identified by the Licensing Board and the Commission indicating that, insofar as the NHRERP provides for teacher escorts on evacuation buses, those provisions *are not necessary* for the safety of the schoolchildren involved.[159] The State planners' conclusion in this regard is apparently based upon their not unreasonable judgment that bus drivers will be able to transport the students safely to reception centers, where the students will be cared for and supervised by the personnel already assigned to staff the centers until such time as they are reunited with their parents or guardians.[160] Because State planning officials have concluded that the role of teachers as bus escorts is largely superfluous, we perceive no purpose in considering further whether teachers will fulfill those roles under the plan.[161]

We thus conclude that, with respect to those duties necessary to provide for the protection of schoolchildren in the event of a radiological emergency, the Licensing Board was correct in its determination that under the NHRERP, teacher role abandonment is not a significant concern.

III. EVACUATION TIME ESTIMATES

Under NRC emergency planning requirements, planning officials are required to develop "[g]uidelines for the choice of

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[158] *See* 10 C.F.R. § 2.764(g).

[159] *See* Tr. 3388-89.

[160] *Cf. Shoreham*, 23 NRC at 152 (evacuation of schoolchildren to be accomplished by bus drivers).

[161] We would suggest, however, that, so as not to mislead those involved in or relying upon emergency response efforts by school personnel, State planners may wish to revise the plan to reflect their judgment about the precatory nature of teacher participation as escorts on student buses.

protective actions during an emergency."[162] To this end, planners also are to "provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations."[163] NUREG-0654 guidance on fulfilling these requirements provides that an evacuation time estimate (ETE) should be prepared "based on a dynamic analysis (time-motion study under various conditions) for the [EPZ]."[164] As we have noted previously, "the [ETE] analysis is intended to reflect a realistic time for completing an evacuation."[165] With this information in hand, "emergency coordinators can then decide what protective actions (e.g., sheltering or evacuation) are warranted in the circumstances, if a radiological emergency occurs."[166] The ETE is, however, only a planning tool; Commission regulations establish no particular time limits for completing an EPZ evacuation.[167]

For emergency planning purposes, the New Hampshire EPZ has been divided into seven Emergency Response Planning Areas (ERPAs).[168] In turn, ten regions, each consisting of one or more ERPAs, have been established on the basis of direction (i.e., north, south, or west) and spatial extent (i.e., beach area, two miles, five miles, EPZ boundary) relative to the Seabrook Station.[169] In accordance with NUREG-0654 guidance, the NHRERP sets forth a series of ETEs intended to cover different evacuation scenarios. The scenarios encompass different

[162] 10 C.F.R. § 50.47(b)(10).

[163] *Id.* Part 50, App. E, § IV.

[164] NUREG-0654 Criterion II.J.10.*l*. Further detailed guidance on how to prepare an ETE is provided in Appendix 4 to NUREG-0654.

[165] *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220, 244 (1986), *see also Limerick*, ALAB-836, 23 NRC 479, 486 (1986).

[166] *Limerick*, ALAB-845, 24 NRC at 244, *see also Limerick*, ALAB-836, 23 NRC at 486.

[167] *See Limerick*, ALAB-845, 24 NRC at 244; *Limerick*, ALAB-836, 23 NRC at 486.

[168] NHRERP (Seabrook Station Evacuation Time Study), Vol. 6, at 10-5.

[169] *Id.* at 10-3.

different seasons (summer or off-season), days (weekend or mid-week), times (mid-day, evening, or all day) and weather conditions (good, rain, or snow).[170] For each scenario, the ETE for each region was calculated using the Interactive Dynamic Network Evaluation (I-DYNEV), a computer model developed by government consultants.[171]

The Licensing Board concluded that the ETEs put forth by applicants, as modified by the Board on the basis of the record established during the hearing on intervenors' ETE contentions, were sufficiently accurate to fulfill all applicable requirements.[172] Before us, intervenors MassAG and NECNP assert that several deficiencies exist in the ETEs that were generated for the New Hampshire portion of the Seabrook EPZ. Principally, they contend that (1) traffic management efforts have failed to recognize and compensate for the effects upon evacuation times of delayed staffing of the seventy traffic control posts (TCPs) for the New Hampshire EPZ, and (2) the number of vehicles at the beach on a summer "peak" day was inaccurately determined, thereby affecting the accuracy of the ETEs for the beach population.[173] Although we find no basis for the first assertion of error, we conclude that some additional modification is necessary for ETEs involving the beach area.

A. The Licensing Board recognized that in a fast-breaking accident there might not be sufficient time to have State or local police personnel at all TCPs before an evacuation is to

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[170] *Id. at* 10-2.

[171] *Id.* at 10-1, 10-6 to -11; *see* LBP-88-32, 28 NRC at 781.

[172] LBP-88-32, 28 NRC at 803-04.

[173] MassAG Brief at 29-32, NECNP Brief at 27-41. Before the Licensing Board, intervenors also raised a concern about whether sufficient consideration had been given to the effect upon the ETEs of New Hampshire EPZ residents who commute to work outside the EPZ but who, in returning home during an evacuation, would create additional traffic congestion. The Licensing Board deferred resolution of this issue pending further submissions by the parties. *See* LBP-88-32, 28 NRC at 789. The Board subsequently addressed the matter in its November 1989 final partial initial decision on emergency planning matters. *See* LBP-89-32, 30 NRC at 423-34.

begin.[174] In this regard, the focus was on the New Hampshire State Police, which will provide personnel for at least forty percent of the TCPs.[175] In testimony before the Board, New Hampshire State Police Captain Sheldon Sullivan described the mobilization of State Police both from Troop A in Rockingham County, where the Seabrook plant is located, and from other troops across the rest of the state.[176] Captain Sullivan estimated that from the time State Police troopers are told to respond within the EPZ, four troopers could reach TCPs within fifteen minutes, three more officers could respond within the next forty-five minutes, and in the next hour six more troopers would arrive at TCPs.[177] Thereafter, additional troopers would arrive so that within five hours after notification, approximately 100 troopers would be on duty.[178] Captain Sullivan also stated that ultimately 185 New Hampshire uniformed troopers would be available for service within the EPZ.[179]

In an effort to address intervenors' concerns about the effect of delayed staffing upon ETEs, particularly in light of the delays about which Captain Sullivan testified, applicants made three different I-DYNEV computer calculations that

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[174] LBP-88-32, 28 NRC at 789. In addition to the 70 TCPs designed to facilitate traffic flow out of the EPZ, police also are to staff 19 access control points (ACPs) to restrict entry into the EPZ. *Id.* at 790. As the Licensing Board noted, for the issue of ETE accuracy, the importance of ACPs is that they take up available police resources. *Ibid.*

[175] *Id.* at 790-91. In the event of local nonparticipation, the number of State Police needed for traffic control would be somewhat higher. *See infra* note 192.

[176] *See* Tr. 4676, 4679-80, 4696. State-wide mobilization is necessary because planners called for the use of 48 troopers to staff TCPs and 26 State Police officers at ACPs. *See* LBP-88-32, 28 NRC at 791. At the time of applicants' personnel response survey, Troop A had only 36 troopers, of which 12 to 14 would be on active duty or on call at any given time. *See* Tr. 4676-78.

[177] Tr. 4714-15.

[178] Tr. 4715.

[179] The total figures cited by Captain Sullivan were as of August 1987, the time of the applicants' SPRA. Tr. 4729-30. Captain Sullivan stated that at the time he testified in November 1987, the number of uniformed officers had increased by 21. Tr. 4700, 4729-30. He also noted that the potential

assumed there would be late or no staffing of TCPs.[180] As detailed by the Licensing Board, for the first calculation, the applicants assumed that the important State Police-staffed TCP at the New Hampshire Route 51 overpass at Interstate 95 would not be manned for one hour after beach closure; that the TCP at the intersection of State Routes 1 and 101C would not be staffed by State Police until two hours after beach closure; and that a planned State Police TCP at Hampton Harbor Bridge to discourage traffic from traveling south from the Town of Hampton Beach toward the Town of Seabrook would not be established for two hours.[181] The second calculation was made to determine the sensitivity of the ETE model to a two-hour delay in the staffing of the Route 51 overpass TCP.[182] For the third calculation, it was assumed that none of the capacity-enhancing TCPs in the Massachusetts portion of the EPZ was established.[183] The first calculations showed a twenty-minute decrease in the ETE for the entire EPZ.[184] The second calculation showed an ETE increase of five minutes.[185] An ETE increase of two hours resulted from the third calculation.[186] The Licensing Board concluded that these additional sensitivity calculations adequately reflected the effect of delayed staffing upon ETEs.[187].

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existed for calling into service an additional 40 State Police officers who normally serve as plain clothes detectives as well as 3300 officers from surrounding states who, in accordance with the New England State Police Compact, are to respond at the request of the Governor of New Hampshire. Tr. 4698-99, 4730-31.

[180] *See* Applicants' Direct Testimony No. 7, at 44-48.

[181] LBP-88-32, 28 NRC at 792.

[182] *Ibid.*

[183] *Ibid.*

[184] *Id.* at 793. The reason for this decrease is that permitting movement south over the Hampton Harbor Bridge expedites evacuation. *See* Applicants' Direct Testimony No. 7, at 47.

[185] LBP-88-32, 28 NRC at 793.

[186] *Ibid.*

[187] *Id.* at 794.

Before us, the MassAG does not directly contest the Board's findings concerning the effects of delayed staffing on ETEs.[188] Instead, as he did before the Licensing Board, the MassAG uses the applicants' admission that staffing delays may occur in some circumstances as a springboard to question TCP staffing adequacy. The Licensing Board rejected this line of attack, declaring that (1) New Hampshire had committed all of its available State Police resources to evacuation traffic control and was not required to hire more State troopers in anticipation of a radiological emergency, and (2) the MassAG's argument improperly isolated a particular, rapidly developing accident sequence during the peak summer population and involving the entire EPZ in order to attack overall planning adequacy.[189] The MassAG asserts the Board's analysis is wrong on both counts. Applicants and the staff both support the Licensing Board's analysis.

To begin with, the MassAG questions the Licensing Board's conclusion that all available New Hampshire State Police have been committed to evacuation traffic control, pointing to the fact that, of the 185 uniformed officers identified as "available" in the applicants' SPRA, only seventy-four are committed to traffic control.[190] He also suggests that the Licensing Board's declaration that no further officers need be hired was tantamount to an improper holding that by providing all

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[188] Citing a Licensing Board finding in its discussion of "Human Behavior in Emergencies" that the I-DYNEV model "utilized a 15% reduction in capacity factor on all roads to account for driver uncertainty and short-term disruptions which can disrupt capacity," *id.* at 747, intervenor NECNP asserts that this finding is, in fact, related to TCP staffing delays and that the 15% figure is too low to account for such delays. NECNP Brief at 36-38. As applicants point out, Applicants Brief at 24, NECNP's argument concerning the validity of the 15% figure is misplaced because its premise that this finding by the Board was intended to address delays arising from TCP staffing is wrong. If this figure was intended to address the issue of TCP delays, there seemingly would be no reason to conduct the additional I-DYNEV runs described *supra*.

[189] LBP-88-32, 28 NRC at 795.

[190] MassAG Brief at 29-30.

available resources, the State has undertaken its "best efforts" and thus need do no more.

These arguments miss the mark. While the MassAG correctly states that only seventy-four of the 185 uniformed officers have been "committed" to traffic control, this ultimately is irrelevant to the issue of whether this staffing level is adequate. The MassAG has not called our attention to any record evidence establishing either that more than seventy-four officers are needed to service the TCPs now designated under the NHRERP or that additional TCPs (staffed by additional officers) should be designated at particular locations.[191] Moreover, the MassAG's argument fails to account for the fact that all but twelve of the "available" officers who are not committed to controlling traffic (i.e., nearly 100 officers) have not been given other specific assignments in the SPRA and thus presumably could undertake traffic control duties if called upon to do so.[192]

The real issue, and the one the MassAG seemingly attempts to frame by his reference to "best efforts," is whether there has

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[191] Although asserting that traffic control staffing in the New Hampshire portion of the EPZ generally is inadequate because of the congested traffic flow throughout the EPZ, as proof of this inadequate staffing the MassAG references only the lack of traffic guides along a one-mile stretch of road in Hampton Beach. *Id.* at 15. He fails to point to any evidence in the record establishing where more staffing is needed for this (or any other) particular stretch of roadway, much less how much more staffing would be required. Given that the number of state troopers who can be called upon for traffic control is well in excess of what is presently utilized under the NHRERP, *see* Applicants' Exh. 1-A; *supra* note 179 and accompanying text, even accepting the MassAG's premise that traffic congestion and the disorderly driver behavior it will foster mandate some additional traffic control, *see* MassAG Brief at 19, 20, it is not apparent that there are insufficient resources to provide the necessary personnel. In any event, as we have indicated previously, the Licensing Board acted appropriately in rejecting the MassAG's central thesis that driver behavior will seriously impair evacuation efforts under the existing traffic control scheme. *See supra* pp. 391-98.

[192] *See* Applicants' Exh. 1-2; *supra* note 179 and accompanying text. The number of officers without formal assignments could be further decreased by 11 if it is necessary for the State Police to compensate for local nonparticipation, *see* Applicants' Exh. 1, at 3-7, but this still would leave almost 90 extra officers available.

been an appropriate allocation of these otherwise adequate State Police resources. The Licensing Board dismissed the MassAG's challenge by citing the lack of any regulatory requirement that the State recruit more troopers. Relative to the MassAG's concern, however, an equally compelling answer, consistent with the Commission's guidance in its *San Onofre* decision,[193] is that there is no regulatory requirement that the State permanently assign existing police resources to a particular location simply to ensure that there are no staffing delays in the event of a radiological emergency. Put another way, simply because additional police resources will be needed in a particular location in the event of a radiological emergency and will require some period of time to arrive, this potential for delay does not require that permanent police staffing in that area be "beefed up" to a degree beyond what is otherwise required to provide adequate law enforcement protection under normal circumstances. We thus find no basis for intervenor's challenge.

The MassAG also contends that an incorrect premise undergirds the Board's determination that his arguments violate the general principle that emergency planning not be based upon an isolated accident sequence. Citing the Board's findings that the delay problems he envisions will arise only for a particular accident scenario (i.e., a fast-breaking accident) with a particular beach population size (i.e., peak) and a particular type of evacuation (i.e., one involving the entire EPZ), the MassAG contends that because the staffing delays can occur in other instances as well, the Board was incorrect in resolving his concerns on this basis.[194]

Assuming that the MassAG is correct in this regard, which is not at all apparent,[195] nonetheless this does not lead us to a

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[193] *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 536 (1983), *rev'd in part on other grounds, GUARD* v. *NRC*, 753 F.2d 1144 (D.C. Cir. 1985).

[194] MassAG Brief at 30-32.

[195] For instance, although the MassAG asserts that staffing delay problems will occur in instances other than fast-breaking accidents, *ibid.*, because the

different conclusion about the adequacy of the State's traffic management plan. Planners have recognized that the potential for delayed TCP staffing exists and have compensated for this in the NHRERP by prioritizing TCPs.[196] As a result, once a determination is made to staff the TCPs, available officers are to be assigned first to those TCPs that are considered most critical to expediting traffic flow.[197] It also is apparent, as FEMA witnesses made clear, that in any emergency situation responding officials must take into account the state of existing resources, including mobilization status, in making protective

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NHRERP calls for State troopers to be mobilized to staff TCPs at the Alert stage of any radiological emergency prior to any evacuation actually being *ordered*, *see supra* note 31, seemingly only in those instances in which a radiological emergency progresses in less than five hours from an Alert stage to a General Emergency stage, when an evacuation would be ordered, is there any serious concern about delays resulting from traffic control staffing.

The MassAG nonetheless tries to minimize the positive impact of this early mobilization policy, declaring there still would be substantial traffic congestion and delays because the beaches also may be closed at the Alert Stage, putting many additional cars on the highway. MassAG Brief at 32. His argument, however, fails to recognize that even if an early beach closing results in traffic congestion, this in no way has an adverse impact on radiological safety for the general public unless the accident is a relatively fast-breaking one. Although inconvenient, the delays that people may encounter leaving the area because of either traffic congestion or TCP staffing delays due to early mobilization at the Alert stage have no adverse effect in terms of radiological safety, at that early response stage plant conditions should not have an impact on the radiological safety of persons outside the plant's boundary. *See* ALAB-924, 30 NRC at 363.

[196] NHRERP, Vol. 6 (Seabrook Station Evacuation Time Study), at 7-2.

[197] *See* Tr. 4704-05, 4731. The MassAG complains that, as of the time of his appeal, there was no staffing sequence for TCPs. MassAG Brief at 31 n.22. A draft staffing sequence was in existence at the time of the hearing and was provided to intervenors. Tr. 5801-02, 5804. Moreover, as is apparent from the State of New Hampshire Traffic Management Manual accompanying the NHRERP, of which we take official notice, *see* 10 C.F.R. § 2.743(i), implementing details have been finalized. *See* State of New Hampshire Traffic Management Manual § 2.0 (Rev. 2, Dec. 1989) [hereinafter NHTMM].

In this regard, we note that for the New Hampshire TCPs asserted by staff witness Dr. Urbanik to be the most critical in terms of their capacity to enhance vehicle flow, *see* Tr. 7722-23 (referencing TCPs A-HB-03, A-HB-04, and D-HA-02), under the NHTMM they have been given top staffing priority in the event of a general evacuation, *see* NHTMM at 2.1-3.

action determinations.[198] If a particular accident sequence requires that protective action be taken when State and local emergency response efforts are not fully mobilized, officials would have to weigh whatever increased risks may be attendant upon taking a particular protective action (such as an evacuation) without having the planned response personnel in place. Thereafter, they would make a determination about what is the best course in the circumstances. By incorporating this sensible approach,[199] in conjunction with assigning priorities to staffing, the NHRERP provides the requisite assurance that traffic control delays will not have an adverse impact on emergency response under the NHRERP.

NECNP also challenges the Licensing Board's conclusion regarding the effect of staffing delays on ETEs by questioning the assumption about the availability of the Hampton Harbor Bridge, which was incorporated in the supplemental I-DYNEV calculations, described above.[200] According to NECNP, by permitting evacuees to move south over the bridge, they are being allowed to move "closer" to the Seabrook facility.[201] As a result, permitting evacuation in this direction requires that the State make a choice involving "both pros and cons" and, therefore, involves a change that the State cannot be presumed to make.[202] There thus being no "assurance" that this "fix" will be put into place by planning officials, NECNP requests that we remand the matter for "further review by the State of New Hampshire."[203]

The State already has given further consideration to the "pros and cons" of TCP staffing at the bridge. It has assigned

[198] Tr. 4077-79. *See also* FEMA Pre-filed Testimony at 52 (capacity exists to implement protective actions such as sheltering without local response organizations being fully staffed).

[199] *See* NHRERP, Vol. 4, at F-36.

[200] *See supra* note 181 and accompanying text.

[201] NECNP Brief at 38-40. The Licensing Board described this as a movement "not very much" in the direction of the Seabrook facility. LBP-88-32, 28 NRC at 795. NECNP asserts it involves moving traffic perhaps eight- or nine-tenths of a mile closer to the plant. NECNP Brief at 40.

[202] *Id.* at 39.

[203] *Id.* at 40.

that TCP a staffing priority that would allow for movement to the south for a period of up to several hours if an evacuation starts before full TCP staffing has been accomplished by State troopers.[204] The State thus has done what NECNP seeks, i.e., studied the problem and made a determination about what is the proper course to implement. In the circumstances, a remand for further consideration would serve no useful purpose.[205]

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[204] In the NHTMM, during the peak beach season of May 15 to September 15, State Police staffing for the Hampton Bridge TCP (which is designated in the NHTMM as TCP "A-HB-01," *see* NHTMM at 3.0-68 to -69) is given 16th or 17th priority. NHTMM at 2.1-3 to -8, 2.1-10 to -16. On the basis of Captain Sullivan's testimony concerning availability of State troopers, *see supra* notes 177-78 and accompanying text, this would mean that in a fast-breaking accident, beach traffic would not be discouraged from evacuating south across the bridge for at least the first two hours following an order to staff the TCPs. Indeed, in the case of a beach-only evacuation, the Hampton Bridge TCP will not be established. *See* NHTMM at 2.1-9.

[205] NECNP also opines that there may be some question whether the State should choose to allow traffic to move south, as both intervenors' and applicants' experts agreed it would if staffing for the bridge TCP was delayed. *See* LBP-88-32, 28 NRC at 794. As support for this assertion, NECNP declares that evidence on beach vehicle counts "suggests" that vehicle distribution is not a constant. NECNP Brief at 39. Further, NECNP hypothesizes that allowing movement south might be improper if the beach traffic distribution is heavier to the south at the time an evacuation is ordered. *Ibid.* Of course, in order to have this distribution information, it is necessary, as NECNP also urges, to establish an extensive "real-time" traffic monitoring system for the Seabrook beach area. *Id.* at 39 n.22.

NECNP asserts that, because evacuation times are so highly variable depending upon traffic flow, weather, and other factors, to aid decision-makers in arriving at appropriate determinations about the necessary protective actions in any circumstances, applicants and/or the State of New Hampshire should be required to establish a computerized traffic monitoring system that can be used to compute "real-time" ETEs on the basis of actual traffic counts in the beach area and elsewhere. Putting aside the fact that there is no requirements in NUREG-0654 for such an ETE calculation system, *see* Tr. 7742, and the fact that the ETEs provided in the NHRERP, which encompass a number of different traffic and weather scenarios, are within the scope of NUREG-0654 guidance on ETE calculation, we are not convinced on the basis of the record before us that such a system would have the benefits intervenor ascribes to it. As was noted by Dr. Thomas Urbanik, the staff's expert witness on traffic management matters whose qualifications are discussed more fully *infra* at note 220, the imperfections in current computer

B.1. Another matter in controversy before the Licensing Board was the question of the proper calculation of the ETE for evacuation of the beach population within the EPZ on sunny summer weekends, the time when the beach population would be at its greatest.[206] The focus of the parties' dispute was the appropriate figure to assign for the number of vehicles occupying the beach area, an important input for calculating the ETEs for the beach population.[207] Ultimately the Licensing Board determined that a figure of 31,000 vehicles was appropriate for the beach population ETE calculations.[208] Intervenor NECNP disputes the validity of this figure, arguing that intervenors' evidence, and the Board's own statements, establish that the "peak" vehicle count used for ETE calculations should be significantly in excess of that amount.[209]

NUREG-0654 guidance on ETE development states that, in producing ETEs, planners should include "[e]stimates of transient populations . . . such as peak tourist volumes."[210] According to NECNP, "peak tourist volume" for the Seabrook beach area should be calculated based upon the assumption that all real estate available for parking will be fully utilized.[211] Using this "maximum available parking space" approach, which NECNP asserts was utilized by applicants initially,[212] inter-

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models create a real concern about the practicality of intervenor's suggestion. Tr. 7743. Nonetheless, we do commend to the attention of State planning officials Dr. Urbanik's comments on the effectiveness of increased traffic monitoring as a tool for providing a better generic understanding of beach traffic patterns that may contribute ultimately to enhancement of the existing ETEs. Tr. 7738-39.

[206] In the ETEs for the NHRERP, this is denoted as Scenario 1 for Region 1. *See NHRERP, Vol. 6, at 10-2 to -3.*

[207] Because the NHRERP ETEs are based essentially upon vehicle trips, the number of vehicles in the beach area that must be evacuated, rather than the number of people in the vehicles, becomes a central factor. *See* LBP-88-32, 28 NRC at 784.

[208] *Id.* at 802.

[209] NECNP Brief at 27-36.

[210] NUREG-0654, App. 4, at 4-3.

[211] *See* NECNP Brief at 28.

[212] *Ibid.* (citing NHRERP, Vol. 6, at 10-15).

venors argued before the Licensing Board that, based on their aerial photographs taken on July 5 and 19, 1987, the figure of 38,825 vehicles should be used for ETE calculations.[213]

In contrast, applicants claimed that an appropriate method for calculating "peak tourist volume" was to identify the number of vehicles in the beach area on a "representative peak day." According to applicants, this method is based upon an actual count of vehicles and unfilled but delineated noncurb parking spaces in the beach area on a midsummer weekend day with "good" beach weather, during the midafternoon period when there was likely to be maximum traffic.[214] Before the Board, applicants proffered July 18, 1987, as a "representative" peak day and contended that, at the early afternoon time (approximately 2 p.m.) at which beach population is at its greatest, there were 29,293 vehicles at the beach.[215]

The Licensing Board accepted both applicants' assertion that July 18 was a representative peak day and their parked vehicle count for that date; however, the Board also declared that evidence in the record supported increasing the vehicle population by approximately 1500 to include vehicles estimated by NRC staff expert Dr. Thomas Urbanik to be in transit (rather than parked).[216] This count, apparently rounded to the nearest thousand vehicles, produced the figure of 31,000 vehicles accepted by the Licensing Board as the number for a "reasonably expectable peak occupancy."[217] NECNP now

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[213] *See* LBP-88-32, 28 NRC at 799. This figure of 38,825 can be broken down into 24,664 vehicles in the New Hampshire portion of the EPZ and 14,161 in the Massachusetts portion of the EPZ. *See* ALAB-924, 30 NRC at 362 n.124.

[214] Applicants' Direct Testimony No. 7, at 30-31; Tr. 7395.

[215] *See* LBP-88-32, 28 NRC at 797-98. Because the aerial photographs used by applicants' consultant to count parked cars were taken between noon and 1:20 p.m., Tr. 5884-85, the actual vehicle count of 26,850 was increased to compensate for the increase in beach traffic that would be expected to occur toward 2 p.m., when beach traffic is generally acknowledged to be at its height. Applicants' Direct Testimony No. 7, at 30-38.

[216] LBP-88-32, 28 NRC at 798.

[217] *Id.* at 798, 802.

asserts that the Licensing Board's acceptance of applicants' methodology (and the resulting vehicle count) rather than intervenors' "maximum available parking space" approach was without foundation or explanation and, therefore, was arbitrary and capricious.[218] Applicants and the staff contest this assertion, arguing that the evidence before the Board fully supported its determination.[219] Ascertaining the size of a vehicle population so potentially variable as that at a popular beach in the peak summer season is, at best, a difficult endeavor. We find, however, that the Licensing Board's conclusions about the appropriate method in this instance are reasonable and supported by the record.

In accepting applicants' proposed vehicle estimates in lieu of intervenors' figures based on the maximum available parking, the Licensing Board relied upon the testimony of staff traffic planning expert, Dr. Urbanik.[220] Dr. Urbanik rejected the intervenors' view that an ETE should be computed on the assumption that all available parking spaces might be filled. In his expert opinion, filling all parking capacity was an occurrence that likely would never come to pass because of the dynamics of the beach area parking situation.[221] According to Dr. Urbanik, in any parking system in which there is vehicle turnover, which there clearly would be at the beach as people come and go, there will always be vacant spaces. Thus, the number of parking spaces that might be available is not a true indicator of the actual number that will be occupied at any

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[218] NECNP Brief at 29.

[219] Applicants Brief at 22-3; NRC Staff Brief at 63-64.

[220] LBP-88-32, 28 NRC at 798. Dr. Urbanik, who has a master's degree in transportation engineering and a doctorate in civil engineering, taught transportation engineering and planning, traffic engineering, and highway design at Texas A&M University and was transportation operations program manager at the University's Transportation Research Institute at the time he testified. Curriculum Vitae of Thomas Urbanik II, fol. Tr. 7372. He has testified on ETE-related matters on behalf of the NRC staff in at least five other NRC licensing proceedings. *Ibid.*

[221] Tr. 7385-88.

one time.[222] In lieu of intervenors' maximum parking capacity methodology, Dr. Urbanik supported the applicants' approach whereby the appropriate "peak" vehicle figure is that having a "reasonable expectation to occur on a hot summer day."[223]

As Dr. Urbanik's testimony suggests, the weakness in intervenors' "maximum available parking space" method is that, failing to provide any concrete link between the existence of parking space and the reality of how many vehicles actually occupy that space during a "peak" period, this approach tends to overestimate the number of vehicles involved. Illustrative of this flaw is intervenors' failure to establish any instance when 38,000 plus vehicles have been at the beach area on a summer weekend day. Instead, as the Licensing Board correctly pointed out, in their various attempts to count vehicles neither applicants not intervenors have tallied more than 27,000 vehicles actually at the beach.[224] The Licensing Board thus acted reasonably in declining to adopt a method that, through likely overestimation of the vehicle count, would deprive the ETE of much of its practical utility.

By the same token, because it does not contain this potential for overestimation, we find no error in the Licensing Board's acceptance of applicants' method of determining the "reasonably expectable occupancy." There clearly are fluctuations in beach traffic from one midsummer weekend day to the next. Nonetheless, based principally as it is upon the more tangible foundation of an actual vehicle count rather than estimates of how much parking is available, applicants' method seemingly provides response officials with an ETE derived from much more realistic (and thus less likely to be overestimated) information.[225] Moreover, as Dr. Urbanik also suggested, because

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[222] Dr. Urbanik testified that because of the turnover dynamic, between 10% and 20% of the overall parking capacity will not be utilized even if the traffic flow into the parking area is at a maximum. Tr. 7387-88.

[223] Tr. 7394.

[224] LBP-88-32, 28 NRC at 802.

[225] The Licensing Board recognized that the vehicle figure produced from applicants' July 18 survey likely was not the "peak of the peaks." *Id.* at 798.

traffic flow dynamics tend to establish a finite range within which vehicles can enter the beach area during the late-morning to early afternoon "peak period,"[226] if the "representative" day is appropriately chosen the resulting vehicle count does not foster a diametric concern about substantial underestimation. Accordingly, NUREG-0654's guidance to calculate ETEs on the basis of "peak tourist volumes" is well served by the use of the "reasonable expectable occupancy" method and we find the Licensing Board committed no error in determining that applicants properly could utilize it.

Intervenor NECNP also questions whether the Licensing Board acted correctly in accepting July 18, 1987, as the representative peak day.[227] This determination likewise is supported by the record. As the Board noted, the evidence showed that on this midsummer day the weather was sunny and warm with temperatures in the mid-80s.[228] Media reports from various sources indicated there was a heat wave with record beach crowds during this period.[229] Applicants' planning officials also testified that data from traffic counters located on

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It suggested that this number would be in the range of 35,000 to 36,000 vehicles, based upon a 90% occupancy of the nearly 39,000 parking spaces identified by intervenors. *Id.* at 801. This "peak of the peaks" figure, however, suffers from the same lack of a verified factual basis as the parking space estimate upon which it is based. *See supra* pp. 416-17. While informative, as the Licensing Board suggested, *see* LBP-88-32, 28 NRC at 798, 803, it also is less probative than the figures generated by applicants' survey of the actual beach vehicle population.

[226] *See* Tr. 7396-401.

[227] NECNP Brief at 29.

[228] Applicants' Direct Testimony No. 7, at 27; Tr. 6083. As was noted by Gordon R. Derman, the president of the company that conducted the aerial photographs survey for applicants, although an airplane and crew were ready initially to take the beach photographs on the weekend of July 4, 1987, the survey was not conducted then because, after consultation with applicants' planning personnel, it was determined that the weather conditions were not optical for having a large beach population and obtaining good photographs. Tr. 5869. Conditions also were not optimal on the next weekend, so it was not until the third weekend in July, when weather conditions were appropriate, that the photographs were taken. Tr. 5870-72.

[229] Tr. 6075.

beach routes were similar to those recorded by counters operated on a peak traffic day in 1983 when traffic measurements were being taken.[230] This evidence amply demonstrates that this July weekend day was a "representative peak day" during which beach traffic was within the general range that could be expected during the heights of the beach season.

2. Completing its challenge to the Licensing Board's determination on the appropriate beach vehicle count, intervenor NECNP questions the Board's endorsement of a vehicle population of 31,000 for that date.[231] In addition to adopting applicants' figure of 29,293 observed parked vehicles and requiring that an additional 1500 vehicles be included to compensate for vehicles estimated to be in transit on the roadways (a requirement with which applicants do not quarrel), the Licensing Board also judged that there would have been approximately 2000 vehicles in covered parking spaces that were not accounted for in the applicants' figures.[232] NECNP declares that in its final figure of 31,000 vehicles, the Licensing Board nonetheless erred because it failed to include a substantial portion of these hidden vehicles.

We too are troubled by the Licensing Board's action in this regard. In its decision, the Board declared:

> Intervenors presented *convincing unrebutted* testimony based on field observations that there are in excess of 2200 parking spaces in the EPZ beach areas which are not observable in vertical aerial photos because they are in under-building parking areas, garages, and carports. It is not unreasonable to assume that on reasonably busy beach days 90%, or about 2000, of these vehicle spaces would be occupied. Together, the 29,300 parked vehicles seen, the 1500 vehicles seen on the roads, and 2000 more that likely were parked in spaces hidden from view, total

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[230] Applicants' Direct Testimony No. 7, at 27; Tr. 6082-84.

[231] NECNP Brief at 30-31.

[232] LBP-88-32, 28 NRC at 801-02.

> 32,800 vehicles that were likely present in the beach areas on July 18, 1987.[233]

Yet, in subsequently adopting the figure of 31,000, the Board provided no specific explanation of why it did not include the entire number of "obstructed view" vehicles described above.[234]

As the Licensing Board recognized, ETEs "should be as accurate as reasonably achievable under the state of the art, but with due consideration also given to their predicted use."[235] We recognize that ETEs for the beach population are less critical in the case of Seabrook because, in most instances, the protective action of choice will be evacuation.[236] Nevertheless, given the Licensing Board's determination, in consonance with the suggestion of staff witness Dr. Urbanik, that it would include 1500 vehicles in transit that were not reflected in applicants' initial vehicle figure, and the Board's categorization of the intervenors' evidence on hidden vehicles as "convincing" and "unrebutted," its unexplained exclusion of the additional hidden vehicles is an omission that must be rectified.[237] We will, therefore, remand this matter with the direction that, in addition to the vehicles in transit required by the Board to be included,[238] the Board should direct the applicants to incorpo-

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[233] *Id.* at 801 (emphasis added and citations omitted).

[234] *See id.* at 802.

[235] *Id.* at 778.

[236] *See* ALAB-924, 30 NRC at 363.

[237] Although Dr. Urbanik expressed some doubts about the validity of intervenors' figures for hidden parking, Tr. 7513-14, the Licensing Board's characterization of intervenors' evidence as "unrebutted" leads us to conclude that as the trier of fact it did not find Dr. Urbanik's testimony on this score persuasive.

[238] NECNP also complains that the Licensing Board erred when, instead of directing the State to adopt an amended set of ETEs, it merely directed that revised ETEs be submitted by applicants to the State. NECNP Brief at 40-41. The Licensing Board's directive is consistent with 10 C.F.R. Part 50, App. E, § IV, and NUREG-0654 Criterion II.J.8, which impose upon an applicant the task of ETE preparation. Moreover, because the guidance in NUREG-0654 suggests that there is some independent State responsibility to incorpo-

rate within the appropriate ETE calculations the number of vehicles hidden from aerial observation as set forth in the Board's findings in ¶9.120 of its decision.[239]

Because full-power authorization for the Seabrook Station has been made effective,[240] in remanding this matter we must consider the impact of our action upon that authorization.[241] In accordance with 10 C.F.R. § 50.47(c)(1), we find that the existing licensing authorization need not be vitiated. As we

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rate these ETEs, NUREG-0654 Criterion II.J.10.*l*-m, we find no practical basis for a concern that the ETEs revised by the applicants will not be incorporated into the NHRERP by the State. In fact, the State has revised the ETEs in the NHRERP as a result of the Licensing Board's directive in LBP-88-32, *see infra* note 239, and we have no reason to believe that a similar result will not obtain here.

[239] Before us, NECNP also challenges a "confirmatory" ETE calculation made by the Licensing Board based upon "vehicle clearance rates," which the Board found in "good agreement" with intervenor videotape evidence on summer weekend vehicular traffic congestion leaving the beach areas. NECNP Brief at 31-33. As the applicants note, although the Board's opinion did contain misstatements concerning the vehicle per minute rate (686 and 687 rather than 68.6 and 68.7), the final result from its calculations was mathematically correct. Applicants Brief at 23 n.5. Given the Board's direction that ETE revisions by applicants were necessary, it is not apparent why it provided its own calculations based upon a method other than the applicants' accepted I-DYNEV model. Nonetheless, we note that the Board's ETE calculation of seven hours and 32 minutes is close to the revised I-DYNEV calculation of seven hours and 35 minutes resulting from the calculations undertaken to implement the Licensing Board's directive to add the vehicles in transit. *Compare* LBP-88-32, 28 NRC at 802 *with* NHRERP, Seabrook Station Evacuation Time Study, at 10-23 (Rev. 2, Dec. 1989) (Scenario 1/Region 1). Nor do we find, as NECNP asserts, that this time estimate is "illogical" in light of intervenors' videotape evidence. NECNP Brief at 31-33. The anecdotal nature of that evidence makes it of limited use as a tool for calculating or comparing projected ETEs. In any event, to the degree it is useful to make comparisons for ETE purposes on the basis of data other than the I-DYNEV calculations, we find much more compelling the fact that the vehicle figure that applicants are to utilize under our remand agrees roughly with the total vehicle number of 33,000 that intervenors' witness Dr. Thomas Adler put forth as the appropriate figure for beach vehicles on July 18, 1987. *See* Tr. 7341-42.

[240] CLI-90-3, 31 NRC at 223.

[241] *Limerick*, ALAB-845, 24 NRC at 234; *Limerick*, ALAB-836, 23 NRC at 520, *see* CLI-90-3, 31 NRC at 230 & n.10.

noted previously, the use of evacuation as a protective action for the beach population in almost all instances substantially limits the possibility that the ETEs being recalculated will be utilized for their principal purpose of aiding in protective action decisionmaking.[242] Moreover, the additional calculations required to correct the ETE deficiency identified should not require significant time or resources to complete. The correction required need only be incorporated by applicants in additional I-DYNEV computer calculations and the results included in the NHRERP, all of which doubtless can be completed promptly.[243] Further, because the additional vehicles that must be considered amount to only about five percent of the total embodied in existing ETE calculations and ETE sensitivity to such a small incremental change does not appear great, we do not anticipate that the additional calculations will result in a profound change in the existing ETEs. Accordingly, given that the deficiency identified is not significant, no suspension of license effectiveness is necessary or appropriate.

IV. OTHER MATTERS

In addition to its challenges to the Licensing Board's findings in LBP-88-32, intervenor SAPL asserts that the Board erred in rejecting two of its contentions prior to hearing.[244] We disagree and affirm the Licensing Board's action in both instances. Further, in light of the Commission's statements in CLI-90-2 concerning emergency planning's status as an "adequate protection" standard under AEA section 182, some further discussion is necessary regarding an intervenor claim that several aspects of the emergency response planning under the NHRERP fail to conform to this standard.

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[242] *See supra* note 236 and accompanying text.

[243] In this regard, we observe that before the Licensing Board intervenors apparently abandoned any challenge to the validity of the I-DYNEV computer program, *see* LBP-88-32, 28 NRC at 781, and have not questioned the efficacy of the program before us.

[244] SAPL Brief at 65-67.

A. With its Contention 4, SAPL sought to challenge the applicants' compliance with the requirement of 10 C.F.R. § 50.47(b)(12) that "[a]rrangements are made for medical services for contaminated injured individuals." Specifically, that contention stated:

> The New Hampshire State, local and host community plans fail to meet in adequate fashion the requirements that provisions be made for medical treatment of contaminated injured individuals as set forth at 10 C.F.R. § 50.47(b)(12) and NUREG-0654 II.L.1 and L.3.[245]

According to SAPL, because the statement of basis accompanying its contention demonstrated that the local hospitals listed in the NHRERP as capable of treating "contaminated injured individuals" had inadequate capacity, the Licensing Board's threshold rejection of the contention improperly deprived it of the opportunity to litigate the factual issues surrounding this alleged deficiency.

In ruling on this contention,[246] the Licensing Board relied on a Commission policy statement issued in the wake of the decision of the United States Court of Appeals for the District of Columbia Circuit in *GUARD* v. *NRC*.[247] In *GUARD*, the court rejected the Commission's interpretation of section 50.47 (b)(12) in the *San Onofre* licensing proceeding as requiring only the submission by an applicant of a listing of medical facilities in the vicinity of a reactor site capable of treating contaminated injured individuals and remanded the matter for further proceedings.[248] In a May 1985 interim policy statement, the Commission declared that, during the period in which it would decide how to respond to the court's remand,

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[245] [SAPL's] Second Supplemental Petition for Leave to Intervene (Feb. 21, 1986) at 3-4 [hereinafter SAPL's Second Supplemental Petition].

[246] *See* Memorandum and Order of Apr. 29, 1986, at 83 (unpublished).

[247] 753 F.2d 1144 (D.C. Cir. 1985), *rev'g in part San Onofre*, 17 NRC 528 (1983).

[248] *Id.* at 1146, 1149-50.

licensing boards could find an applicant was entitled to an operating license if the applicant (1) complied with the Commission's pre-*GUARD* interpretation of section 50.47(b)(12) as requiring only a list of medical facilities, and (2) committed to full compliance with whatever further requirements might be imposed by the Commission's response to GUARD.[249] Noting that the applicants had submitted a letter committing to full compliance with the Commission's response to the *GUARD* remand, the Licensing Board concluded that in line with the policy statement the SAPL contention must be rejected.[250]

Before us, SAPL makes no challenge to the Commission's policy statement. It is apparent, however, that at the time the contention was rejected, in compliance with the Commission's pre-*GUARD* guidance on the measures necessary to comply with section 50.47(b)(12), there was a list in the NHRERP of local medical facilities capable of administering care to contaminated injured individuals.[251] In addition, applicants had provided the Licensing Board with evidence of their commitment to comply fully with any Commission requirements that might be imposed as a result of its response to the *GUARD* remand.[252] Thus, under the conditions established by the Commission's policy statement and unchallenged by SAPL, the Licensing Board's action dismissing SAPL Contention 4 was appropriate.[253]

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[249] 50 Fed. Reg. 20,892, 20,893 (1985). *See also* 51 Fed. Reg. 32,904 (1986) (declaring that 1985 policy guidance remains in effect until new guidance is issued, which was to be in November 1986). In its 1985 policy statement, the Commission indicated that an applicant that met these two conditions would be in compliance with 10 C.F.R. § 50.47(c)(1) and thus "entitled to [a] license condition[ed] o[n] full compliance with the Commission's response to the *GUARD* remand." 50 Fed. Reg. at 20,893 (footnote omitted).

[250] Memorandum and Order of Apr. 29, 1986, at 83.

[251] *See* SAPL's Second Supplemental Petition at 4 (citing NHRERP, Vol. 1. § 2.8 (Dec. 1985)).

[252] Letter from J. De Vincentis to V. Noonan (Mar. 12, 1986), fol. Tr. 2353.

[253] The Licensing Board's action in response to the policy statement did not necessarily foreclose intervenor SAPL from further pursuing the issue of applicants' compliance with section 50.47(b)(12). On November 13, 1986,

B. SAPL's other concern is with the Licensing Board's grant of applicants' motion for summary disposition of SAPL Contention 5. This contention, which challenged the adequacy of radiation monitoring planning, asserted:

> The New Hampshire State and local plans are deficient in that they do not ensure that there will be adequate personnel or the timely arrival of personnel trained in radiological monitoring in the plume exposure EPZ following a release or radiation from Seabrook Station. Neither is there assurance that monitoring can be carried on for the required time frame. Therefore, the requirements of 10 CFR § 50.47(a)(1), § 50.47(b)(1), § 50.47(b)(8), § 50.47 (b)(9), and NUREG-0654 II.I.7, I.8. and I.11. and II.A.4. are not met.[254]

In support of their May 20, 1986 summary disposition motion, applicants submitted affidavits from New Hampshire Division of Public Health Services (PHS) Director William T. Wallace, Jr., and James A. MacDonald, the Radiological Assessment Manager for the Seabrook Station.[255] On June 9, 1986, SAPL responded with a letter authored by its consultants Drs.

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after consultation with the NRC and in response to the *GUARD* decision. FEMA issued Guidance Memorandum MS-1, Medical Services, providing interpretation and clarification of section 50.47(b)(12) and associated guidance for inclusion in NUREG-0654. Thereafter, acting on applicants' commitment to carry out this guidance, revisions were made to the NHRERP that were determined by FEMA in December 1988 to conform with Guidance Memorandum MS-1. *See* App. Exh. 43D, at 113, 114, 138. SAPL made no attempt, however, in response to either the new regulatory guidance, the plan revisions, or FEMA's findings relative to the revisions, to present a new contention alleging any deficiencies in the NHRERP with regard to medical services for contaminated injured individuals.

[254] SAPL's Second Supplemental Petition, at 5.

[255] Applicants' Motion for Summary Disposition of SAPL Contention No. 5 and NECNP Contention RERP 10 (May 20, 1986), Affidavit of William T. Wallace, Jr. [hereinafter Wallace Affidavit]; *id.*, Affidavit of James A. MacDonald re SAPL Contention No. 5 and NECNP Contention RERP 10 [hereinafter MacDonald Affidavit].

Richard Piccioni, Nancy Eyler, and Steven Meshnick, supporting SAPL's opposition to applicants' motion.[256] Based on these filings, the Licensing Board concluded that there were no material facts at issue relative to SAPL Contention 5 and that applicants were entitled to summary disposition.[257]

SAPL assigns error to this ruling on the ground of the Licensing Board's purported failure to find that material factual issues existed despite the stated opinion of its "highly qualified" affiants that "actions taken by the State would occur too late to be effective."[258] This assertion, however, does not account for the totality of the information that was before the Licensing Board.

In his affidavit in support of applicants' motion, PHS Director Wallace declared that State monitoring teams would be available for deployment from the Incident Field Office within one and one-half hours from the declaration of an Alert.[259] Intervenors' affiants disputed whether the timing of this State response would be adequate to provide monitoring information necessary to make a timely protective action decision in the event of a fast-breaking accident.[260] They did not, however, challenge the validity of Director Wallace's statements in his affidavit that, prior to the arrival of DPHS monitoring teams, the State will base its assessment of accident conditions and any necessary protective response recommendations on results of monitoring and dose projections provided by the utility.[261] Nor did they address the statements of applicants' Radiological Assessment Manager MacDonald that, within sixty minutes after the declaration of an Alert, the util-

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[256] SAPL's Response to Applicants' Motion for Summary Disposition of SAPL Contentions 5, 7, 14 and 17 and Motion for Partial Summary Disposition of SAPL Contentions 18 and 25 (June 9,1986), Letter of Drs. Piccioni, Eyler, and Meshnick (June 9, 1986) [hereinafter Piccioni, Eyler, Meshnick Letter].

[257] Memorandum and Order of Nov. 4, 1986, at 17-2 (unpublished).

[258] SAPL Brief at 67.

[259] Wallace Affidavit at 2.

[260] Piccioni, Eyler, Meshnick Letter at 2.

[261] *Compare ibid. with* Wallace Affidavit at 2.

ity can deploy three field monitoring teams and, in any event, has the capability to deploy a monitoring team for the perimeter of the facility from the Seabrook Station control room immediately upon the declaration of an emergency.[262]

These statements by applicants' affiants demonstrate that the anticipated limited delay in deployment of State offsite monitoring teams will not impair significantly the ability of emergency response officials to obtain the information needed to make protective action determinations in a fast-breaking accident. Because SAPL failed to controvert (and thus effectively admitted) these material facts as established by applicants,[263] the Licensing Board properly granted summary disposition in applicants' favor on SAPL Contention 5.

C. As a final matter, based upon our study of the Commission's determination in CLI-90-2, which responded to a question we certified in ALAB-922 concerning the admission of certain MassAG testimony on dose reductions/dose consequences alleged to arise under the NHRERP in the event of certain accidents, we find some additional, albeit brief, explanation is necessary relative to a matter raised by intervenor MassAG. As we observed in ALAB-922, the MassAG has questioned whether several aspects of emergency planning under the NHRERP, most notably its provisions regarding sheltering and evacuation/ETEs, provide "adequate protection" under AEA section 182 and "reasonable assurance that adequate protective measures can and will be taken" under section 50.47 (a)(1).[264] With respect to these matters, the MassAG asserts that the plan (and the Licensing Board's assessment of the plan) generally reflects an improper "best efforts under the circumstances" approach rather than the careful consideration of the risk to the public health and safety that he contends the "adequate protection" standard of AEA section 182 (and the "reasonable assurance" standard of section 50.47(a)(1) require.

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[262] *Compare* Piccioni, Eyler, Meshnick Letter at 2 *with* MacDonald Affidavit at 1-2

[263] *See* 10 C.F.R. § 2.749(a).

[264] 30 NRC 247, 255 n.37 (1989).

In ALAB-922, we found it unnecessary to address this "best efforts" claim separately. We concluded that, like the testimony, it was anchored in the MassAG's premise that a risk/dose consequence analysis was required under AEA section 182.[265] Thereafter, in discussing intervenor arguments in support of admission of the testimony, we rejected the assertion that the testimony was admissible to show that the requisite "adequate protection" was not provided by the NHRERP, concluding that emergency planning was not subject to the first tier, "adequate protection" standard for which such a risk-based analysis might be appropriate, but rather was under the second tier, "extra-adequate protection" standard of AEA section 161.[266] In CLI-90-2 the Commission corrected our misapprehension in this regard.[267] This provides the Mass AG little solace, however, for the Commission's disposition of his testimony makes it apparent that his "best efforts" argument likewise is misdirected.

As the Commission made clear in CLI-90-2 in holding that the MassAG's dose reduction/dose consequence testimony was not admissible, although emergency planning is indeed an "adequate protetion" standard under AEA section 182, to determine whether an emergency plan provides "adequate protection," the plan must be assessed in terms of whether it meets the sixteen planning standards of section 50.47(b).[268] Even assuming that a "best efforts" standard is being improperly applied to emergency planning under the NHRERP, which is not apparent to us, intervenor nonetheless has failed to explain how this alleged deficiency has resulted in a plan that violates any of the sixteen specific planning standards in section 50.47(b).[269] Thus, in accord with the Commission's

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[265] *Ibid.*

[266] *Id.* at 256-57.

[267] 31 NRC at 210-13.

[268] *Id.* at 213, 217.

[269] The one exception in this regard is his assertion that the limited utilization of sheltering for the beach population in the NHRERP violates the requirement of section 50.47(b)(10) that a "range of protective actions have been developed," MassAG Brief at 72-75, an argument we already have rejected. *See* ALAB-924, 30 NRC at 367 n.164.

decision in CLI-90-2, we need not give this matter further consideration.[270]

Those portions of the Licensing Board's December 30, 1988 partial initial decision, LBP-32, 28 NRC 667, regarding "Response Personnel Adequacy," "Human Behavior in Emergencies," and "Evacuation Time Estimates (ETEs)," and unpublished Licensing Board rulings on SAPL Contentions 4 and 5 are *affirmed*, except that with respect to the Board's ruling on ETEs we *reverse* and *remand* for further calculations relative to the "hidden vehicles" described in ¶9.120 of LBP-88-32.

It is so ORDERED.

FOR THE APPEAL BOARD

BARBARA A. TOMPKINS
Secretary to the
Appeal Board

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[270] The Commission's determination in this regard likewise addresses SAPL's argument, *see* SAPL Brief at 15-18, that with respect to the adequacy of the NHRERP, the Licensing Board erred in failing to make an overall "reasonable assurance" finding under 10 C.F.R. § 50.47(a)(1). *Cf.* ALAB-922, 30 NRC at 255 n.36.

Contrary to his assertions, MassAG Brief at 85, the Licensing Board also properly rejected the MassAG's additional attempt to introduce a trunciated version of his dose reduction/dose consequences testimony in response to FEMA testimony on the beach population sheltering issue. Although the MassAG asserts that the FEMA testimony was itself based upon a dose consequences analysis, he provides no convincing grounds for overturning the Licensing Board's finding that the testimony was "manifestly without regard to dose consequences analysis." Tr. 11,134. Moreover, as the Commission's ruling in CLI-90-2 makes apparent, 31 NRC at 217, the Licensing Board was correct in its alternative conclusion that, even if FEMA's testimony was a dose consequence analysis, the proper course would be to exclude both the FEMA and MassAG testimony rather than to admit the MassAG's responsive testimony. Tr. 11,133. The Board found no reason to consider taking this step with respect to the FEMA testimony, however, because none of the parties offered a motion requesting that action. Tr. 11,133-34.